FORM MR-LMO
Revised 12/17/99

FOR DIVISION USE ONLY
File #: M/023/016
Date Received: 4/25/2003
DOGM Lead: TM

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING
1594 West North Temple Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801
Telephone: (801) 538-5291
Fax: (801) 359-3940

RECEIVED
APR 25 2003
DIV. OF OIL, GAS & MINING

NOTICE OF INTENTION TO COMMENCE LARGE MINING OPERATIONS

The informational requirements in this form are based on provisions of the Mined Land Reclamation Act, Title 40-8, Utah Code Annotated 1953, General Rules and Rules of Practice and Procedures.

This form applies only to mining operations which disturb or will disturb more than five acres at any given time.

"MINING OPERATIONS" means those activities conducted on the surface of the land for the exploration for, development of, or extraction of a mineral deposit, including, but not limited to, surface mining and the surface effects of underground and in situ mining, on-site transportation, concentrating, milling, evaporation, and other primary processing.

"Mining operation" does not include: the extraction of sand, gravel, and rock aggregate; the extraction of oil and gas as defined in Chapter 6, Title 40; the extraction of geothermal steam; smelting or refining operations; off-site operations and transportation; or reconnaissance activities which will not cause significant surface resource disturbance or involve the use of mechanized earth-moving equipment such as bulldozers or backhoes.

PLEASE NOTE: *This form is to be used as a guideline in assembling the information necessary to satisfy the Large Mining Operations Notice of Intention requirements.* ***You will need extra space to provide a majority of the information requested****. Please provide the information on additional sheets and include cross-referenced page numbers as necessary. The operator may submit this information on an alternate form; however, the same or similar format must be used.*

H.E. DAVIS CONSTRUCTION

LEVAN CHICKEN CREEK MINE

DOGM
Large Mining Permit
NOTICE OF INTENT

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Section VII - Reclamation Plan

Section VIII - Variance

Section IX - Surety

Section X - Signature Page

I. Rule R647-4-104 - Operator(s), Surface and Mineral Owners

The operator must provide the name, address and telephone number of the individual or company who will be responsible for the proposed operation. If a company is to be listed as the operator, then the name of the corporate officers need to be provided.

1. **Mine Name:** Levan Chicken Creek

2. **Name of Applicant or Company:** H E Davis Construction

   Corporation (X) Partnership ( ) Individual ( )

3. **Permanent Address:** 525 West Arrow head Trail
   Spanish Fork, UT 84639

   Phone: 801 798-7355 Fax: 801 - 722-2130

4. **Company Representative** (or designated operator):

   Name: Kay Christoffersen
   Title: President
   Address: 525 west Arrowhead Trail, Sp Fork UT 84639
   Phone: 801- 772- 2100 Fax: 801 - 772-2130

5. **Location of Operation:**
   County(ies) Juab
   ____ 1/4 of SE 1/4, Section: 33 Township: 14S Range: 1E
   ____ 1/4 of SW 1/4, Section: 33 Township: 14S Range: 1E
   SE 1/4 of NW 1/4, Section: 34 Township: 14S Range: 1E

The names of the surface and mineral owners for any areas which are to be impacted by mining must be provided to the Division. This list should include all private, state and federal ownership and the owners of lands immediately adjacent to the project areas.

6. **Ownership of the land surface** (circle all that apply):
Private (Fee), Public Domain (BLM), National Forest (USFS), State of Utah (SITLA) or other:

   Name: H E Davis Address: 525 West Arrow head Trail
   Name: Levan Land Co Address:
   Name: USFS Address:
   Name: Address:

7. **Owner(s) of record of the minerals to be mined:**

   Name: Bob Steele Address:
   Name: Jack Dansie Address:
   Name: H E Davis Const. Address:
   Name: Address:

8. **Have the above owners been notified in writing**? Yes X No _____

   If no, why not? _____

   _____

9. **Does the operator have legal right to enter and conduct mining operations on the land covered by this notice**? Yes X No _____.

105.1 – Base Map

Base Map Checklist

Check		Map ID
✓	(a) Property boundaries of surface ownership of all lands which are to be affected by the mining operations;	II C-1 + 2
✓	(b) Perennial, intermittent, or ephemeral streams, springs and other bodies of water; roads, buildings, landing strips, electrical transmission lines, water wells, oil and gas pipelines, existing wells or boreholes, or other existing surface or subsurface facilities within 500 feet of the proposed mining operations;	II B-1+2
✓	(c) Proposed route access to the mining operations from nearest publicly maintained highway;	II A-1+2
✓	(d) Known areas which have been previously impacted by mining or exploration activities within the proposed land affected;	III A-1+2
✓	(e) Areas proposed to be disturbed or reclaimed over the life of the project or other suitable time period.	III B-1+2

105.2 – Surface Facilities Map

Surface Facilities Map Checklist

Check		Map ID
✓	(a) Proposed surface facilities, including but not limited to: buildings stationary mining/processing equipment, roads, utilities, power lines, proposed drainage control structures, and the location of topsoil storage areas, overburden/waste dumps, tailings or processed waste facilities, disposal areas for overburden, solid and liquid wastes, and wastewater discharge treatment and contamination facilities;	III D-M2
✓	(b) A border clearly outlining the extent of the surface area proposed to be affected by mining operations, and the number of acres proposed to be affected;	III B-M2
✓	(c) The location of known test borings, or core holes.	none

105.3 – Additional Maps

Reclamation Map Checklist

Check		Map ID
✓	(a) Areas of the site to receive various reclamation treatments shaded, cross hatched or colored to identify which reclamation treatments will be applied. Areas would include: buildings, stationary mining/processing equipment, roads, utilities, proposed drainage improvements or reconstruction, and sediment control structures, topsoil storage areas, waste dumps, , tailings or processed waste facilities, disposal areas for overburden, solid and liquid wastes, ponds and wastewater discharge, treatment and containment facilities. Reclamation treatments may include ripping, regrading, replacing soil, fertilizing, mulching, broadcast seeding, drill seeding, and hydroseeding;	II E-1+2
✓	(b) A border clearly outlining the extent of the area to be reclaimed after mining, the number of acres disturbed, and the number of acres proposed for reclamation;	II E-1+2
✓	(c) Areas disturbed by this operation which are included in a request for a variance from the reclamation standard;	II E-1+2
✓	(d) Highwalls which are proposed to remain steeper than 45 degrees and slopes which are proposed to remain steeper than 3 horizontal : 1 vertical.	II E 1+2

HE DAVIS CONSTRUCTION
CHICKEN CREEK MINE
Vicinity Map

N

Scale 1" = 1600'

to Nephi

LEVAN

100 South

State Route 28

PIGEON CREEK

mine access

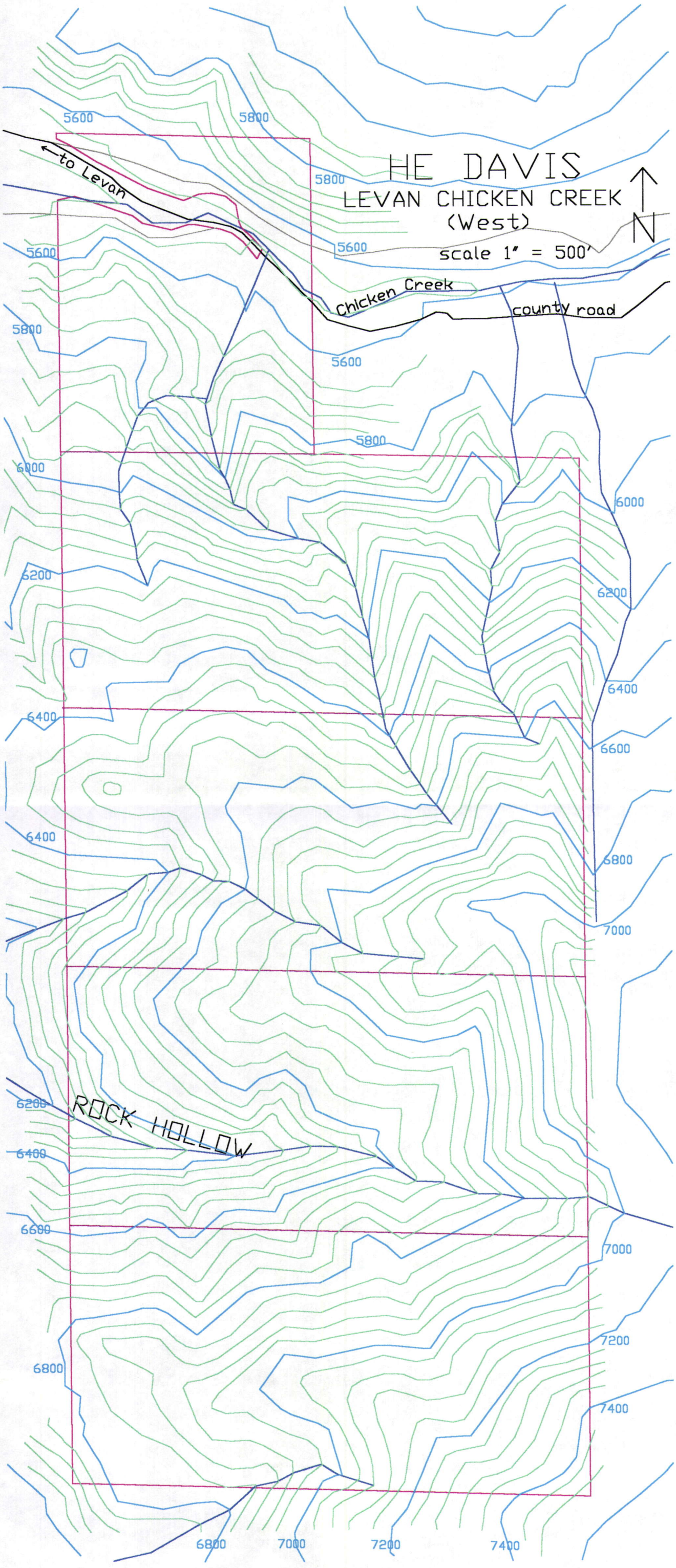
CHICKEN CREEK

MINE LOCATIONS

ROCK HOLLOW

SPRING HOLLOW

RECEIVED
APR 25 2003
DIV. OF OIL, GAS & MINING



BASE MAP
of
LEVAN CHICKEN CREEK

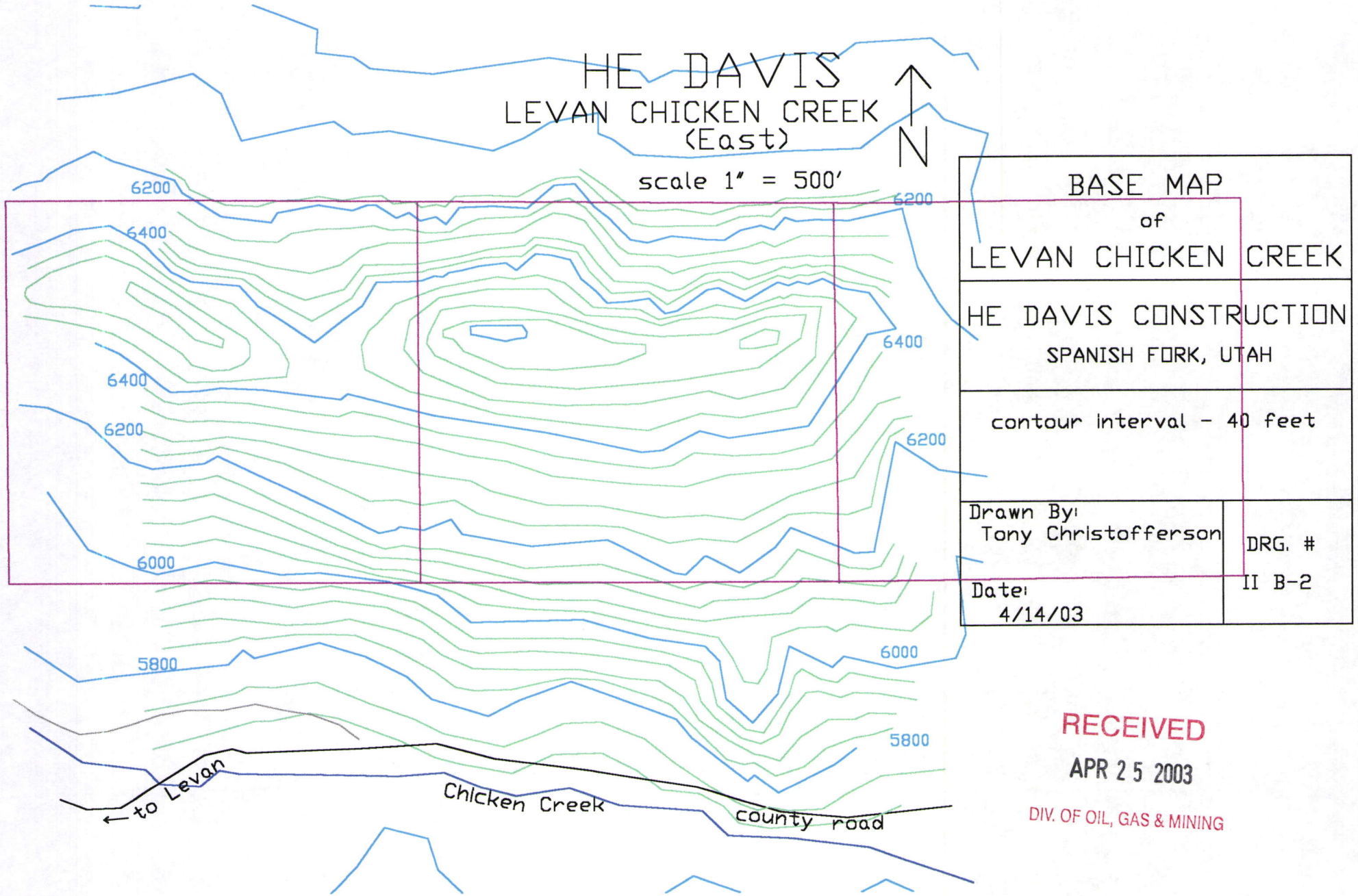
HE DAVIS CONSTRUCTION
SPANISH FORK, UTAH

contour interval - 40 feet

Drawn By:
Tony Christofferson

Date:
4/14/03

DRG. #
II B-1



BASE MAP of LEVAN CHICKEN CREEK	
HE DAVIS CONSTRUCTION SPANISH FORK, UTAH	
contour interval - 40 feet	
Drawn By: Tony Christofferson	DRG. # II B-2
Date: 4/14/03	

FRANKLIN R.
PETERSON

HE DAVIS CONST.

LEVAN CHICKEN CREEK
(West)

scale 1" = 500'

N

PYRAMID
GYPSUM CO.

HE DAVIS
CONSTRUCTION

LEVAN
LAND
COMPANY

BOYD TOM
AAGARD

Claim #1

NATIONAL
FOREST
SERVICE

Claim #2

Claim #3

Claim #4

OWNERSHIP MAP
of
LEVAN CHICKEN CREEK

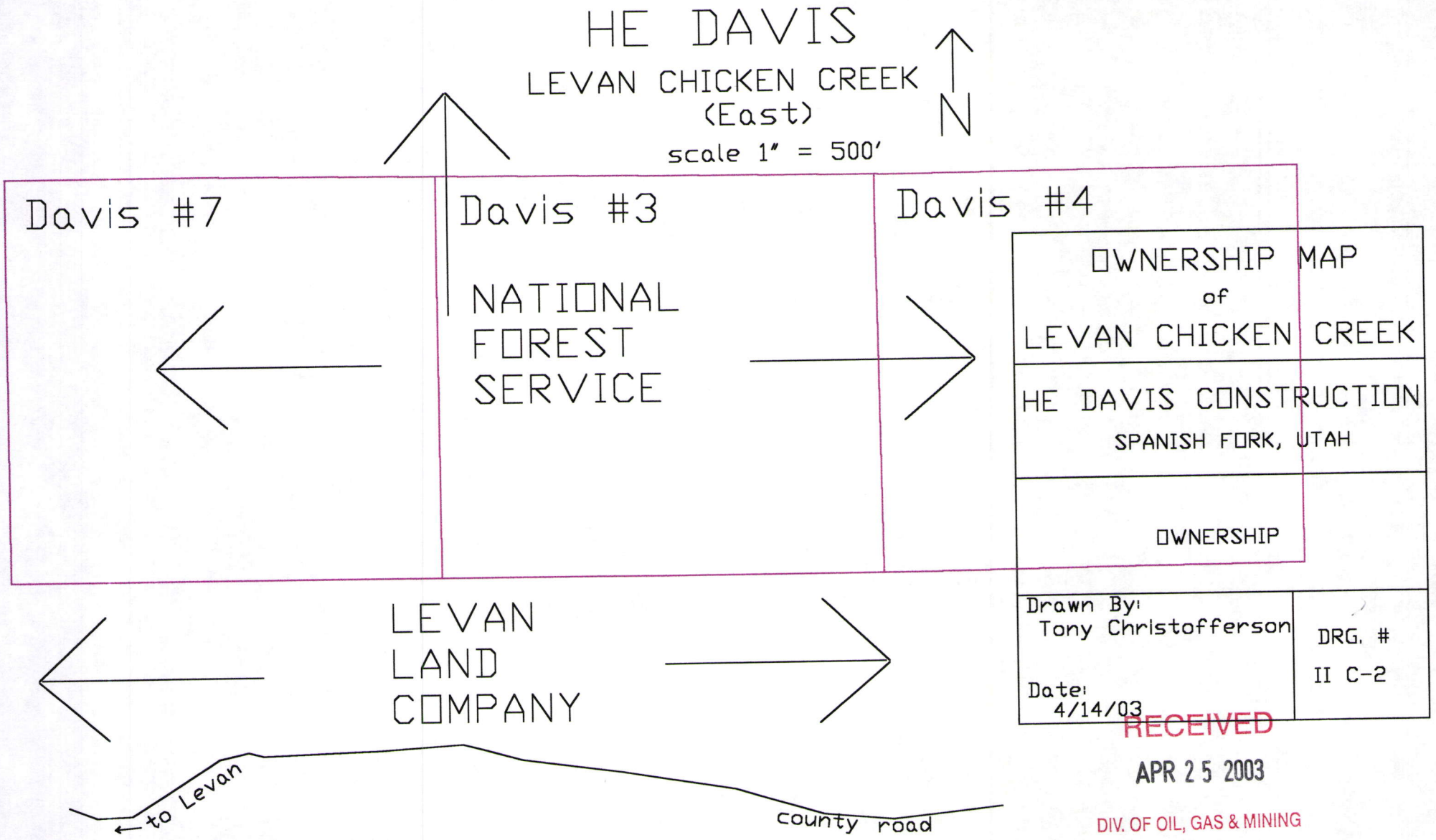
HE DAVIS CONSTRUCTION
SPANISH FORK, UTAH

OWNERSHIP

Drawn By:
Tony Christofferson

Date:
4/14/03

DRG. #
II C-1



HE DAVIS

LEVAN CHICKEN CREEK
(West)

N

scale 1" = 200'

Pond

Boneyard

Pond

CRUSHER SETUP

SOIL STORAGE AREA

SURFACE FACILITIES MAP of LEVAN CHICKEN CREEK	
HE DAVIS CONSTRUCTION SPANISH FORK, UTAH	
EXISTING FACILITIES	
Drawn By: Tony Christofferson Date: 4/14/03	DRG. # II D-1

HE DAVIS

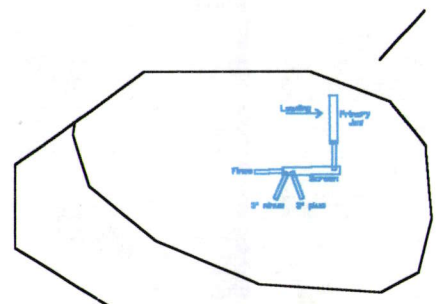
LEVAN CHICKEN CREEK

(East)

scale 1" = 200'

N

CRUSHER SETUP

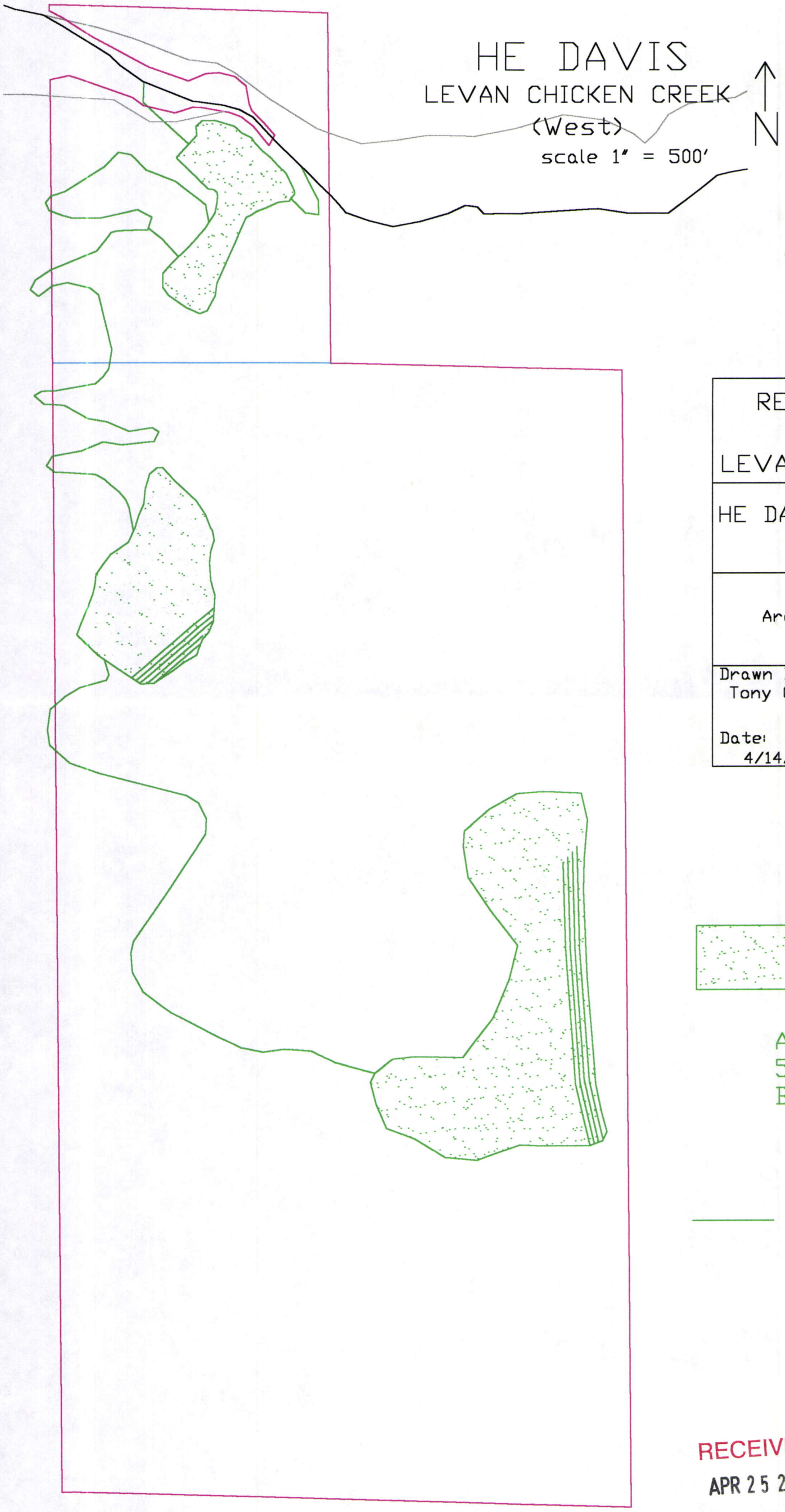


to Levan

Chicken Creek

county road

SURFACE FACILITIES MAP of LEVAN CHICKEN CREEK	
HE DAVIS CONSTRUCTION SPANISH FORK, UTAH	
EXISTING FACILITIES	
Drawn By: Tony Christofferson Date: 4/14/03	DRG. # II D-2



RECLAMATION MAP
of
LEVAN CHICKEN CREEK

HE DAVIS CONSTRUCTION
SPANISH FORK, UTAH

Areas to be Reclaimed

Drawn By: Tony Christofferson Date: 4/14/03	DRG. # II E-1

PROPOSED AREAS OF RECLAMATION INCLUDING ROADS

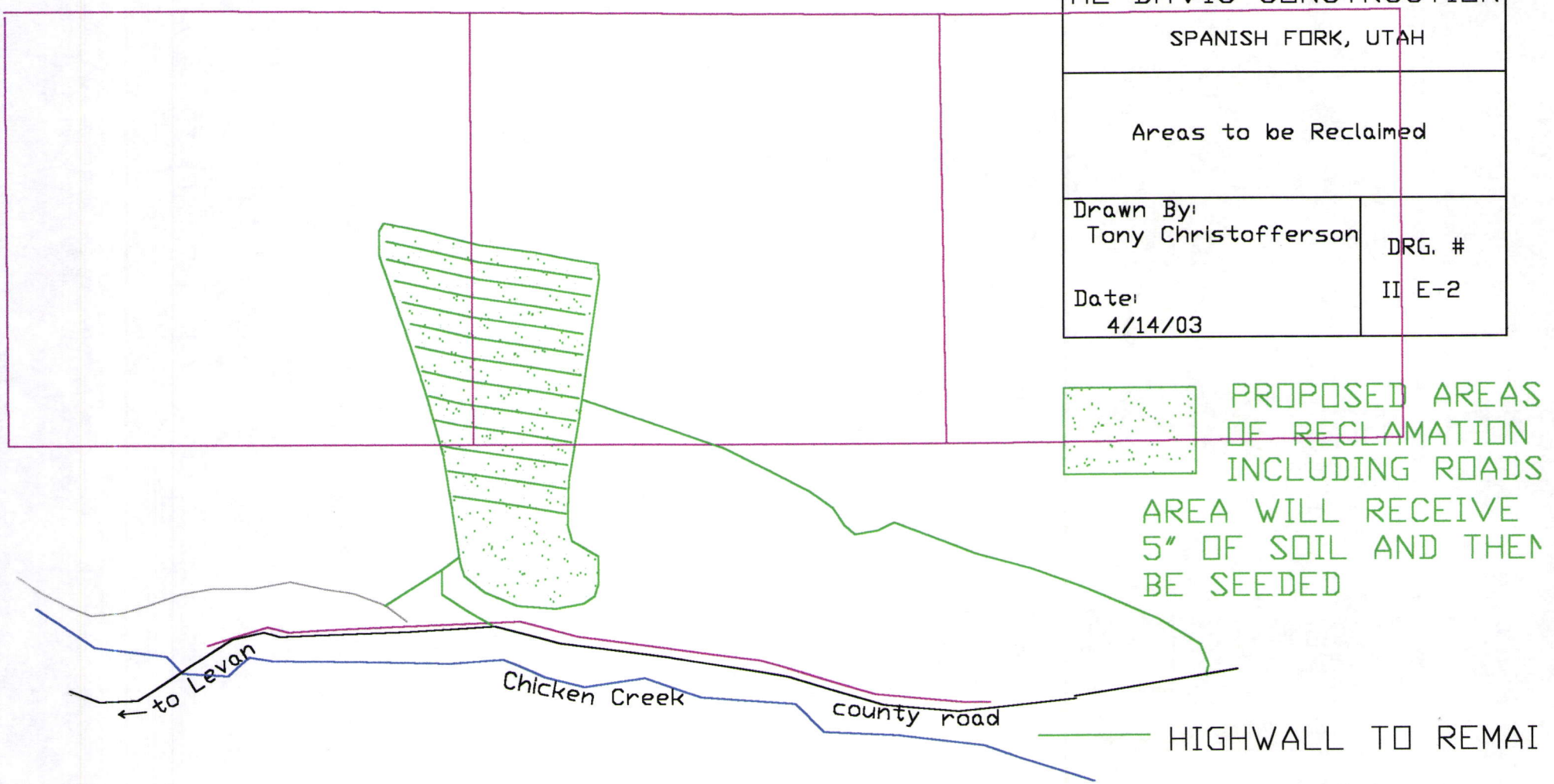
AREA WILL RECEIVE 5" OF SOIL AND THEN BE SEEDED

HIGHWALL TO REMAIN

H.E. DAVIS
LEVAN CHICKEN CREEK
(East)
scale 1" = 500'

N

RECLAMATION MAP of LEVAN CHICKEN CREEK	
HE DAVIS CONSTRUCTION SPANISH FORK, UTAH	
Areas to be Reclaimed	
Drawn By: Tony Christofferson Date: 4/14/03	DRG. # II E-2



106.1 Mineral to be mined

Gypsum (also, var Selenite)

Chemical Formula : $CaSO_4$-$2H_2O$

Hardness : 2
Cleavage : Three, one perfect, two distinct
Luster : Vitreous, pearly, or silky
Color : Colorless, also white, gray, yellowish, or orange-brown when massive.
Streak : White
Density : 2.32
Diagnostic Features and Trivia : Gypsum is the definition of hardness 2 on Moh's scale. Selenite is a form of gypsum with beautiful, clear crystals.
Crystal System and Habit : Monoclinic; commonly tabular on {010}.
Twinning : Conatact twinning on {100} or {-101} producing swallow-tail twins.
Polymorphs : None
Index of Refraction : alpha=1.519-1.521; beta=1.522-1.526; gamma=1.529-1.531

106.2 Type of operation to be conducted.

This mining operation will involve the direct surface mining of gypsum deposits. Mineral extraction will be accomplished by drilling and blasting in order to break the rock into sizes that can be handled by a trackhoe or loader. On the West portion of the mine the material will then be loaded into haul trucks by trackhoes or loaders. The haul trucks carry the material from the mine site down to the county road level of the operation to the processing equipment. The material will be placed onto the ground where a loader will pick it up and place it into a jaw crusher. On the East portion of the mine loaders will pick up the material from the mine and deposit it directly into the crusher. After crushing, the material is transferred to a screen plant that sizes the material into fines, 2"- and 6"-. The sized material is placed into stockpiles. From the stockpiles loaders place it into haul trucks, which transport it offsite.

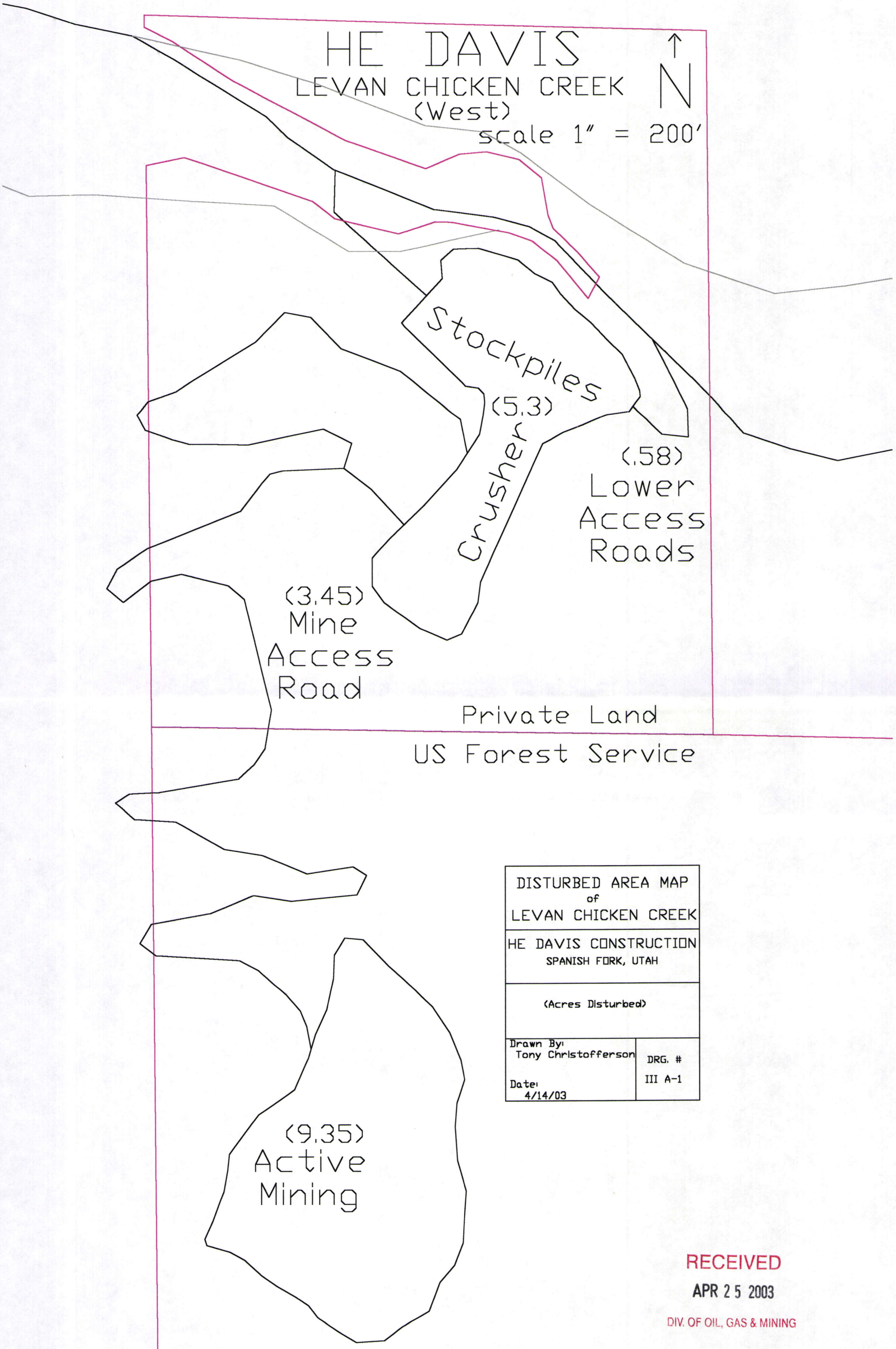
Material will be hauled from the East mine site down a private and controlled road on the north side of the canyon. No trucks from the East mine will use the county road fro access or hauling. Material from the West mine site will continue to exit the canyon on the county road. HE Davis will work with the county on improvements on this portion of the road. HE Davis will also work with the county on a haul road that skirts the Town of Levan in order to minimize the impact to the local residents.

Drilling and blasting is a necessary part of the mining process. HE Davis will follow a blasting protocol which will include a study of the effects of the blasting on the springs that supply the Town of Levan with water.

Some reclamation will happen concurrently with mining operations including final grading as mining proceeds. Topsoil placement will also take place in certain areas as the mining proceeds because some areas will become inaccessible to large equipment.

106.3 Estimated acreage

Areas of actual mining:	___46.75__
Overburden/waste dumps:	Included in mining area
Ore and product stockpiles:	_____2.35__
Access/haul roads:	_____7.73__
Associated on-site processing facilities:	_____4____
Tailings disposal:	_____0____
Other – Please describe:	_____0____
Total Acreage	**____60.83_**



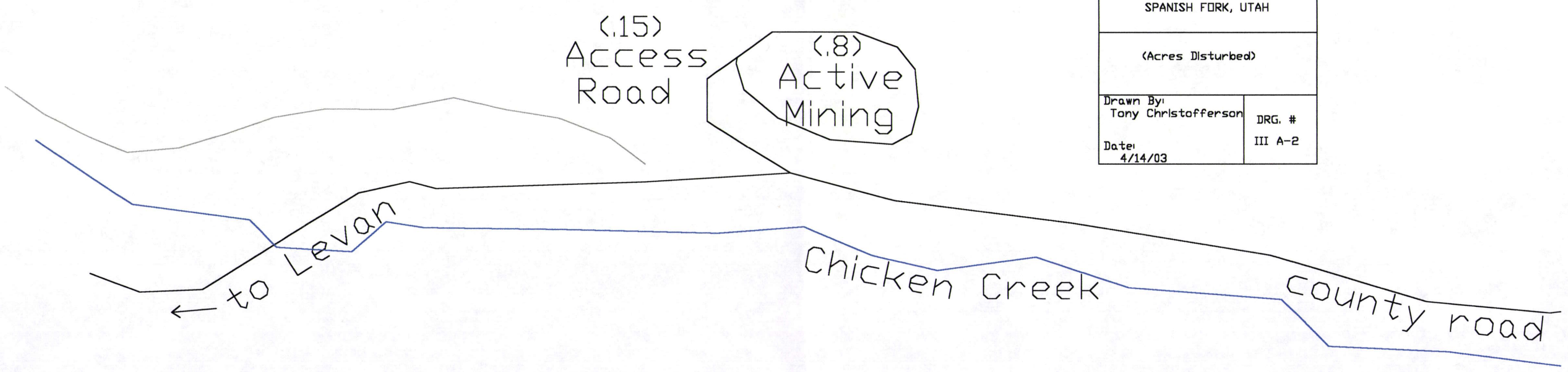
DISTURBED AREA MAP of LEVAN CHICKEN CREEK	
HE DAVIS CONSTRUCTION SPANISH FORK, UTAH	
(Acres Disturbed)	
Drawn By: Tony Christofferson Date: 4/14/03	DRG. # III A-1

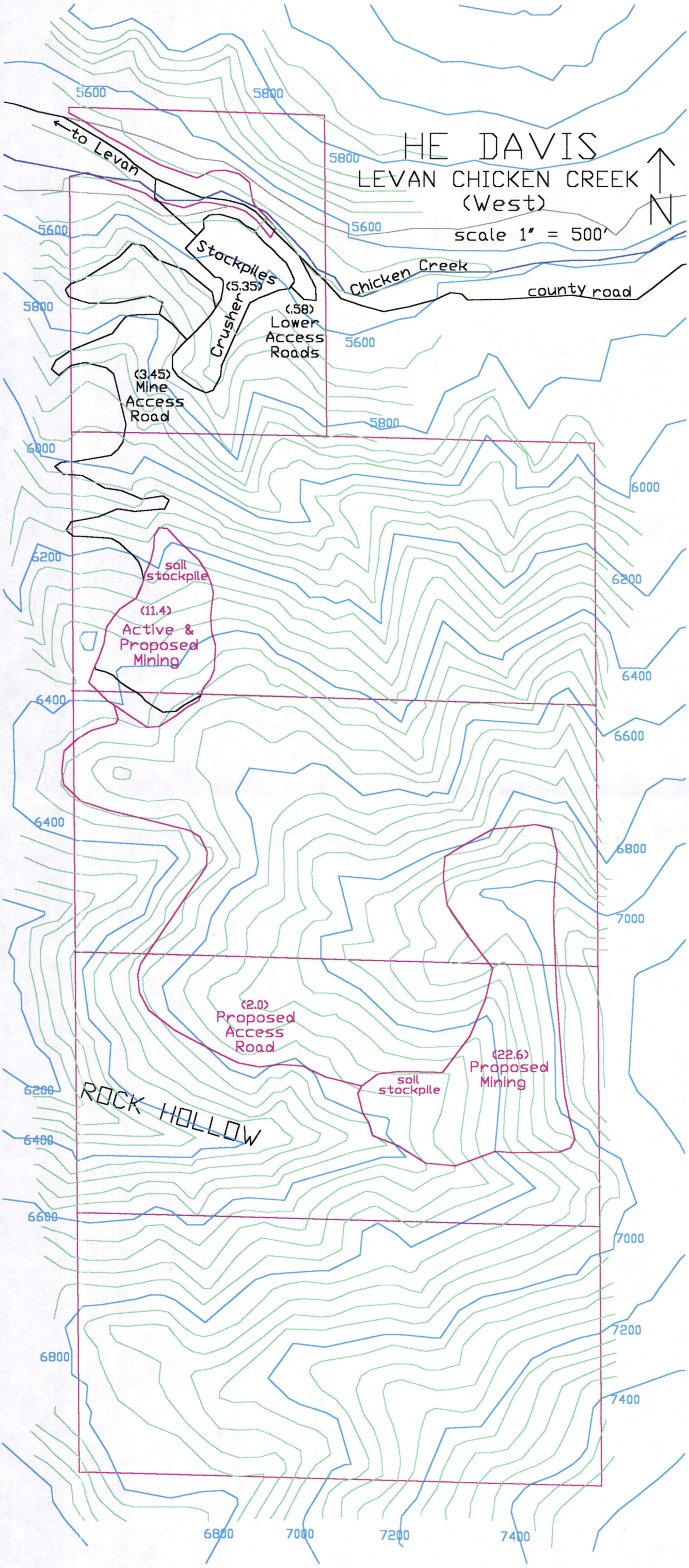
HE DAVIS

LEVAN CHICKEN CREEK
(East)
scale 1" = 200'

N

DISTURBED AREA MAP of LEVAN CHICKEN CREEK	
HE DAVIS CONSTRUCTION SPANISH FORK, UTAH	
(Acres Disturbed)	
Drawn By: Tony Christofferson Date: 4/14/03	DRG. # III A-2





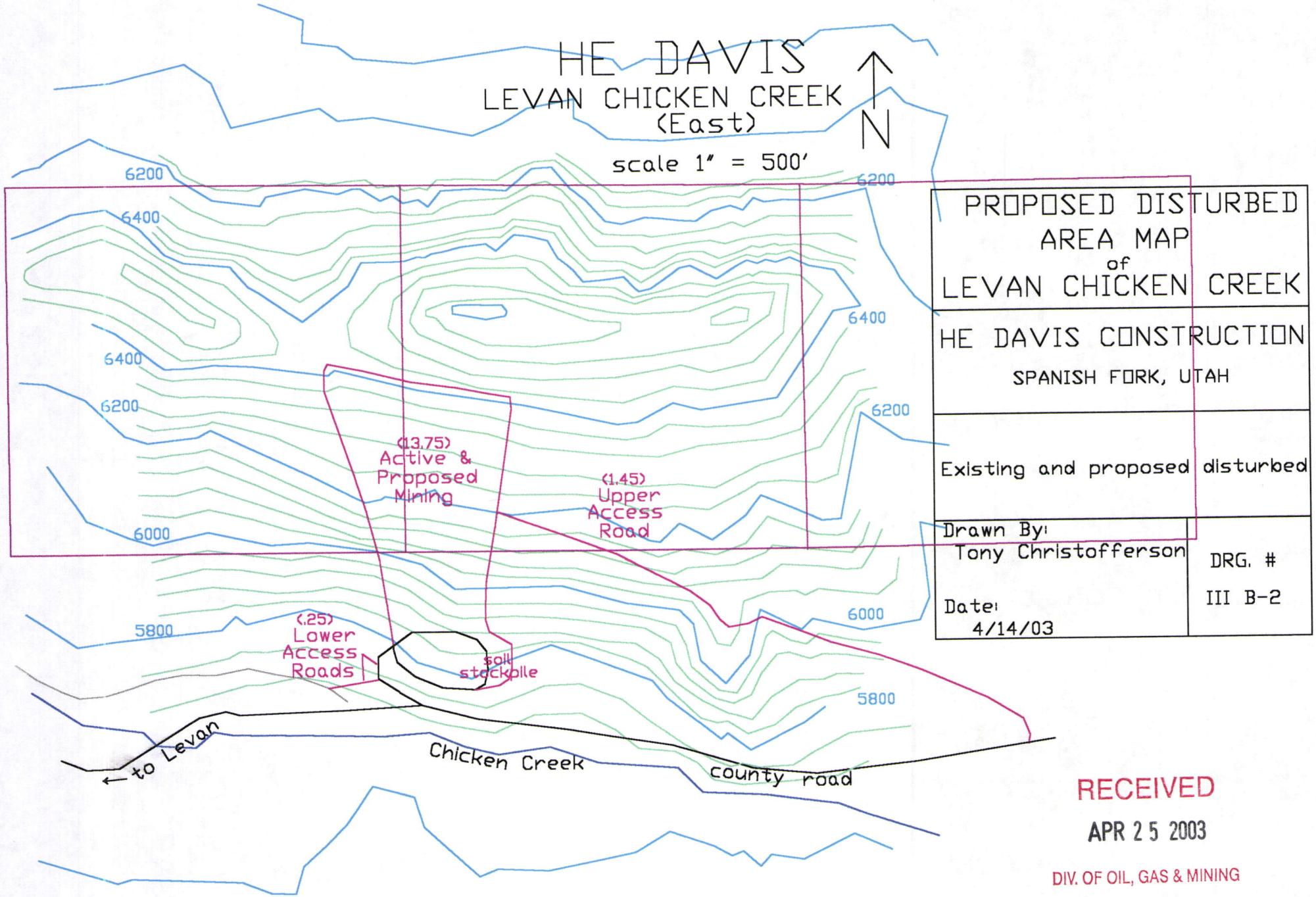
PROPOSED DISTURBED
AREA MAP
of
LEVAN CHICKEN CREEK

HE DAVIS CONSTRUCTION

SPANISH FORK, UTAH

Existing and proposed disturbed

Drawn By: Tony Christofferson Date: 4/14/03	DRG. # III B-1



PROPOSED DISTURBED AREA MAP of LEVAN CHICKEN CREEK

HE DAVIS CONSTRUCTION

SPANISH FORK, UTAH

Existing and proposed disturbed

Drawn By: Tony Christofferson

Date: 4/14/03

DRG. # III B-2

106.4 Nature of material including waste rock/overburden and estimated tonnage

It is anticipated that about 100,000 cubic yards of ore will be mined during an average year. This amount will fluctuate with demand from year to year. Approximately 450 cubic yards of overburden will be removed, to expose the gypsum deposits, each year. This material will include soil and fines, vegetation, and small rock debris. All of which will be stored together in stockpiles to be used later as "topsoil". The overburden is thin enough that all that is collected will be used to reclaim the areas that will be exposed as well as those areas that were already exposed at the time H.E. Davis Construction took over the mine. No waste in the form of tailings or reject material will be produced.

(see table 1 of the "Soils Resources of the Levan Gypsum Mine" report from Mt. Nebo Scientific, Inc. included in section III for soil chemistry)

Thickness of overburden: __ 0-3____ft.

Thickness of mineral deposit: ___200____ft.

Estimated annual volume of overburden: ___450____cy

Estimated annual volume of tailings/reject: ____0_____cy

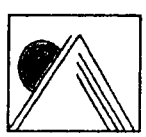
Estimated annual volume of ore mined: _100,000__cy

Overburden/waste description: _soil, vegetation and rock debris__

106.5 Existing soils

The information for this heading is included in a report from Mt. Nebo Scientific, Inc. which comprises the following pages.

SOIL RESOURCES
OF THE
LEVAN GYPSUM MINE



Prepared by

MT. NEBO SCIENTIFIC, INC.
330 East 400 South, Suite 6
P.O. Box 337
Springville, Utah 84663
(801) 489-6937

Patrick Collins, Ph.D.

for

GENEVA ROCK PRODUCTS
1565 West 400 North
Orem, Utah 84057

August 8, 2000

TABLE OF CONTENTS

SOIL RESOURCES
OF THE
LEVAN GYPSUM MINE

INTRODUCTION

General Site Description

Geneva Rock has an active gypsum mine in Juab County, Utah. The gypsum mine is located approximately 2 miles east of the town of Levan. This area is on the west slope of the San Pitch Mountains also known as the Gunnison Plateau. Elevation of the study site ranged from approximately 5,500 ft to nearly 7,500 ft above sea level.

Existing plant communities of the study site were comprised of mountain brush and other associated tree and shrub communities. These communities are described in greater detail in the section called "Vegetation of the Levan Gypsum Mine" of this report. Aside from one area that has been proposed for future disturbance in about 5 years, most of the disturbance to the resident soils have already been effected by mining activities.

The following soils types were located within the permit area of the Levan Gypsum Mine according to the Natural Resources Conservation Service (NRCS):

XB-Xeric Torriorthents-Rock outcrop complex, steep
LeF-Lundy-Rock outcrop complex, 30 to 70 percent slopes
RpD-Rofiss gravelly clay loam, 4 to 15 percent slopes.

Color photographs have been included in this report that show the native soils and the plant communities that grow on them. The disturbed soils are also shown in one of the photographs.

METHODS

As some soil samples were from stockpiles.

Field work was conducted at the site in July and August 2000 to confirm some of the information about the soils in the area as described by the NRCS. Although composite sampling was done on the disturbed soils of the mine site, no soil pits were dug in the native, undisturbed soils in the area. The soil descriptions below were taken directly from the Soil Survey of Fairfield-Nephi Area, Utah [USDA, Soil Conservation Service (1984)]. A map showing the location of each soil type is shown on the soils map included in this report.

Soil sampling was conducted on the disturbed "soil" material that remains following mining activities. Composite samples were made in specific locations throughout current mine area. At these locations ten (10) subsamples were taken and mixed together to form one composite sample (e.g. C1 = ten subsamples from a specific area mixed together). The lab results should provide important information in preparation of the reclamation and revegetation plan. Sample locations are shown on the Soil Resource map included in this report.

RESULTS

XB-Xeric Torriorthents-Rock outcrop complex, steep

This map unit is on hillsides. Slopes are 30 to 70 percent and are medium in length and convex. In most areas the present vegetation is mainly a sparse cover of shrubs. Elevation is 5,600 to 7,600 feet. The average annual precipitation is 12 to 16 inches, the mean annual air temperature is 45 to 52 degrees F, and the average freeze-free season is 100 to 140 days.

This unit is about 60 percent Xeric Torriorthents, 30 to 70 percent slopes, and 20 percent Rock outcrop. The Xeric Torriorthents is on side slopes, and the Rock outcrop is on ridges and escarpments. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 10 percent Rofiss gravelly clay loam, 4 to 15 percent slopes, and 5 percent Manila loam, 8 to 15 percent slopes, on alluvial fans, and 5 percent Lizzant very cobbly loam, dry, 30 to 60 percent slopes, on hillsides. The percentage of these included soils varies from one area to another.

The Xeric Torriorthents are shallow to moderately deep and well drained. They formed in residuum and colluvium derived dominantly from shale. These soils are variable but commonly the surface layer is shaly and very shaly loam to clay loam about 3 inches thick. The underlying

material is shaly and very shaly clay loam to silty clay about 4 to 37 inches thick. Bedrock is at a depth of 7 to 40 inches. Depth to bedrock ranges from 10 to 40 inches.

Permeability of the Xeric Torriorthents is slow or very slow. Available water capacity is about 1 inch to 2 inches. Water supplying capacity is 2 to 5 inches. Effective rooting depth is 10 to 40 inches. The organic matter content of the surface layer is 0 to 2 percent. Runoff is rapid, and the hazard of water erosion is high.

Rock outcrop consists of exposures of barren shale, mainly on escarpments and ridges. This unit is used for wildlife habitat. The potential plant community on this soil is about 20 percent perennial grasses, 10 percent forbs, and 70 percent shrubs. Important plant species are birchleaf mountain mahogany, bluebunch wheatgrass, and Sandberg bluegrass. Because the soil is steep and shallow, grazing management practices are poorly suited to this unit.

This unit is poorly suited to recreation and homesite development. The main limitations are the steepness of slope and the shallow depth of the soil to bedrock. This map unit is in capability unit Vlls-U3, nonirrigated.

LeF-Lundy-Rock outcrop complex, 30 to 70 percent slopes None to be disturbed.

This map unit is on mountainsides and hillsides. Slopes are long and convex. In most areas the present vegetation is mainly grasses and shrubs. Elevation is 5,600 to 8,100 feet. The average

annual precipitation is 14 to 18 inches, the mean annual air temperature is 41 to 45 degrees F, and the average freeze-f ree season is 70 to 110 days.

This unit is about 60 percent Lundy very cobbly loam, 30 to 70 percent slopes, and 20 percent Rock outcrop. The components of this unit are so intricately intermingled that it was not practical to map them separately at the scale used.

Included in this unit are about 5 percent Atepic shaly loam, 10 to 40 percent slopes; 5 percent Lizzant very cobbly loam, 8 to 30 percent slopes; and 5 percent Lodar very cobbly loam, 30 to 70 percent slopes, on hillsides. Borvant cobbly loam, 8 to 25 percent slopes, on alluvial fans, also makes up five percent of this unit. The percentage of these included soils varies from one area to another. The Lundy soil is shallow and somewhat excessively drained. It formed in colluvium and residuum derived dominantly from limestone and sandstone. Typically, the surface layer is dark brown very cobbly loam about 6 inches thick. The underlying material is pale brown and brown very cobbly loam about 13 inches thick.

Limestone is at a depth of 19 inches. Depth to limestone ranges from 10 to 20 inches. Permeability of the Lundy soil is moderate. Available water capacity is about I inch to 2 inches. Water supplying capacity is 2 to 4 inches. Effective rooting depth is 10 to 20 inches. The organic matter content of the surface layer is 1 to 3 percent. Runoff is medium, and the hazard of water erosion is slight.

Rock outcrop consists of exposures of barren bedrock, mainly on escarpments and ridges. This unit is used as rangeland and for wildlife habitat. The potential plant community on the Lundy soil is about 65 percent perennial grasses, 3 percent forbs, 7 percent shrubs, and 25 percent trees. Important plant species are bluebunch wheatgrass, Utah juniper, Indian ricegrass, and black sagebrush. The normal expected yield of total air-dried herbage is about 1,500 pounds per acre. Because of the steepness of slopes and shallow depth to bedrock, grazing management practices are poorly suited to this unit.

This unit is poorly suited to recreational uses and homesite development. The main limitations are slope, stoniness, shallow depth to bedrock, and Rock outcrop. This map unit is in capability unit VIIs-U3J, nonirrigated. The range site is Upland Shallow Loam (Juniper).

RpD-Rofiss gravelly clay loam, 4 to 15 percent slopes.

This very deep, well drained soil is on alluvial fans. It formed in alluvium derived dominantly from shale. Slopes are medium in length and are convex. In most areas the present vegetation is mainly grasses and shrubs. Elevation is 5,100 to 5,500 feet. The average annual precipitation is about 12 to 14 inches, the mean annual air temperature is 45 to 52 degrees F, and the freeze-free season is 100 to 140 days.

Typically, the surface layer is pale brown gravelly clay loam about 12 inches thick. Below this to a depth of 60 inches or more is light gray very gravelly clay loam to extremely gravelly clay loam.

Included in this unit are about 5 percent Donnardo stony loam, 2 to 8 percent slopes, on alluvial fans, and 5 percent Xeric Torriorthents, 30 to 70 percent slopes, on hillsides. The percentage of these included soils varies from one area to another.

Permeability of this Rofiss soil is moderately slow. Available water capacity is 3.5 to 7 inches. Water supplying capacity is 6.5 to 8 inches. Effective rooting depth is 60 inches or more. The organic matter content of the surface layer is I to 2 percent. Runoff is medium, and the hazard of water erosion is moderate.

This unit is used as rangeland and for wildlife habitat and irrigated pasture. The potential plant community on this soil is about 65 percent perennial grasses, 15 percent forbs, and 20 percent shrubs. Important plant species are bluebunch wheatgrass, Wyoming big sagebrush, muttongrass, needle-and-thread, Nevada bluegrass, and antelope bitterbrush. The normal expected yield of total air-dried herbage is about 975 pounds per acre.

Management practices needed to maintain or improve the vegetation include proper grazing use, proper seasonal use, good water distribution, and a planned grazing system. Dense stands of big sagebrush may develop as a result of continuous overgrazing. Brush management by prescribed burning or chemical or mechanical treatment and proper grazing use can improve deteriorated rangeland. Where brush is managed by these methods, however, the soil may be subject to a higher hazard of erosion.

This unit is suited to range seeding. Plants suitable for seeding include Whitmar wheatgrass,

slender wheatgrass, antelope bitterbrush, and species of the potential plant community for which seed or stock is available.

If this unit is used for hay and pasture, the main limitations are the high content of gravel and the strong alkalinity of the soil. If this unit is used for recreation or homesite development, the main limitations are small stones and slope. Erosion is a hazard in the steeper areas. Only the part of the site that is used for construction should be disturbed. In summer, irrigation is required for lawns, shrubs, vines, shade trees, and ornamental trees.

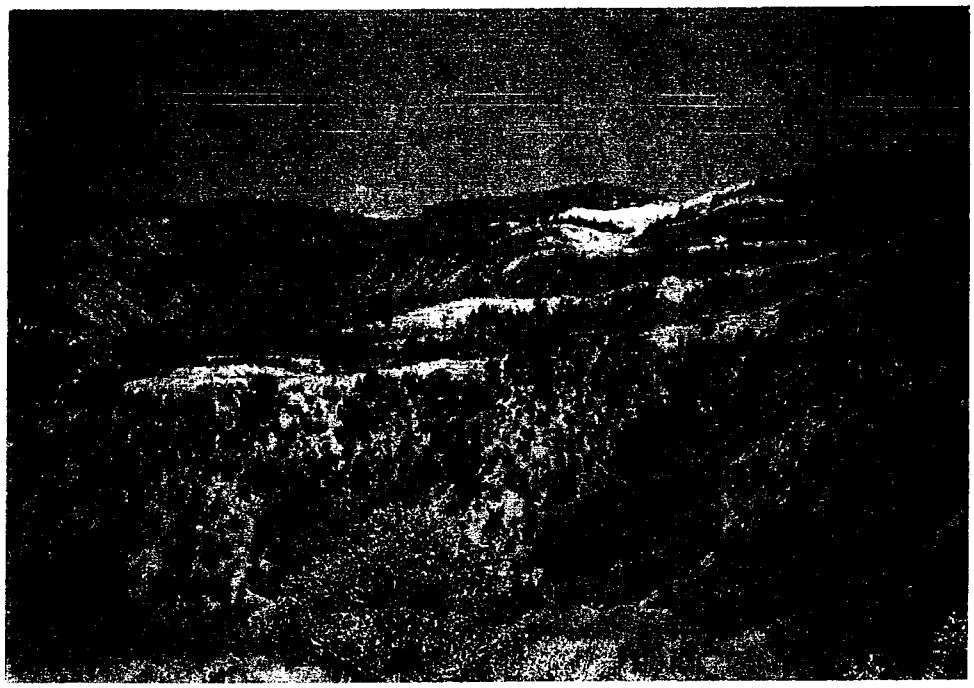
This unit is in capability units IVs-24, irrigated, and Vls- U4, nonirrigated. The range site is Upland Stony Loam.

Laboratory Results

The following Table 1 shows the laboratory results from sampling the disturbed "soil" material, or that material that is left behind for reclamation following mining activities.

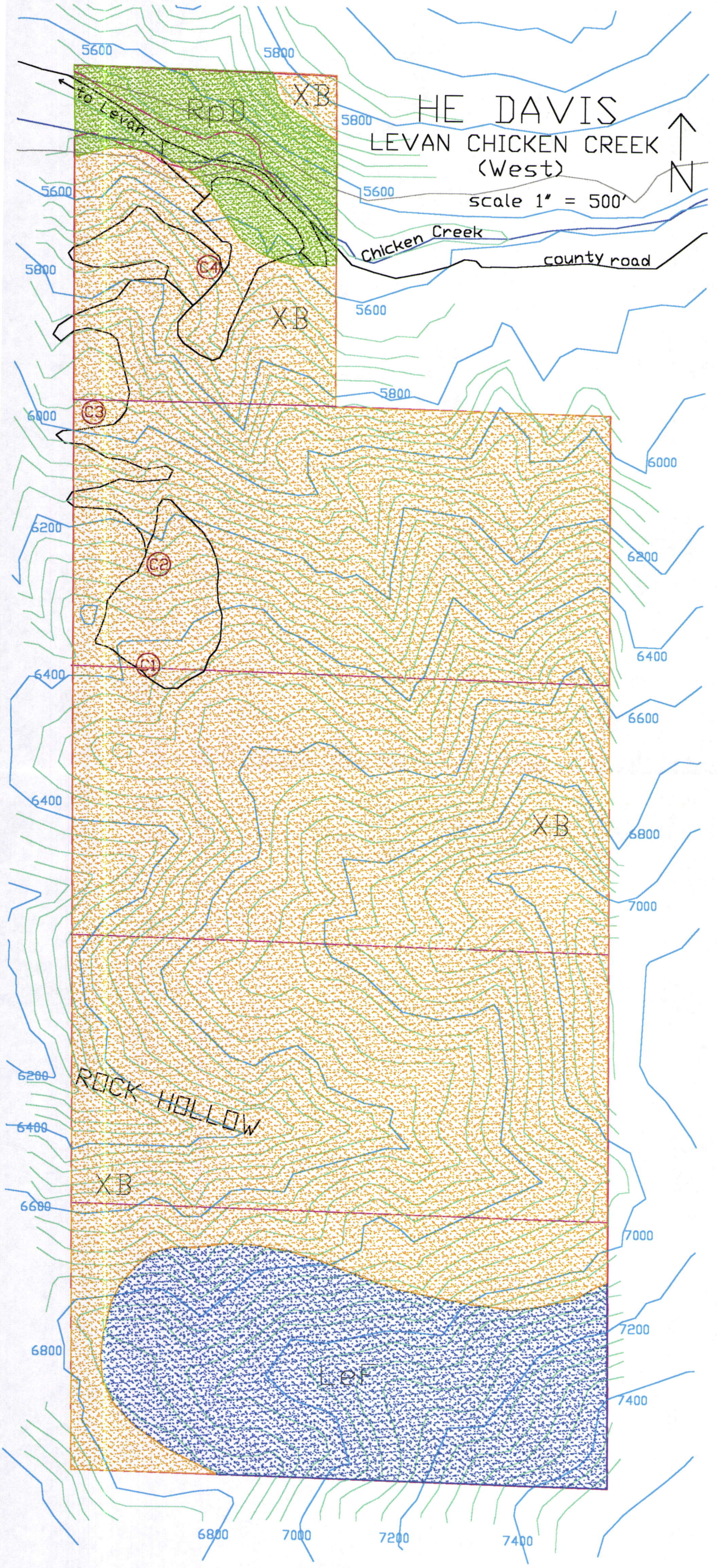
TABLE 1: Laboratory results from disturbed "soils" at the Levan Gypsum Mine				
	SAMPLE NO. *			
PARAMETERS	**C1**	**C2**	**C3**	**C4**
Nitrate-Nitrogen (ppm N)	110.53	26.54	13.32	7.68
Phosphorus (ppm P)	0.34	0.52	4.35	3.13
Potassium (ppm K)	44.80	44.80	105.60	92.80
Salinity-ECe (mmhos/cm)	2.70	2.35	3.40	2.50
Calcium (ppm Ca)	1008.00	896.80	1278.00	807.50
Magnesium (ppm Na)	53.77	67.00	259.30	190.20
Sodium (ppm Na)	86.26	67.39	60.61	32.47
Sodium Adsorption Ratio (SAR)	0.72	0.58	0.40	0.27
Total Nitrogen (ppm Tot. N)	348.21	852.77	909.62	341.11
Calcium Carbonate (% $CaCO_3$)	25.67	41.83	52.74	60.62
Percent Gravel (%)	36.77	33.90	50.68	48.60
Percent Moisture Saturation (%)	55.31	51.35	49.87	42.07
pH	7.36	7.38	7.41	7.69
Sand (%)	47.00	47.92	42.56	42.92
Silt (%)	24.72	25.44	21.52	24.80
Clay (%)	28.28	26.64	35.92	32.28
Texture	Sandy Clay Loam	Sandy Clay Loam	Clay Loam	Clay Loam
Organic Matter (%)	0.72	1.69	2.66	0.92

* Each sample is a "composite"made by taking ten (10) subsamples and mixing them together to make one (1) sample.



General Mine Area Soil Types (also shows disturbed areas)

Mine Area Soil Types (foreground)



SOILS MAP
of
LEVAN CHICKEN CREEK

HE DAVIS CONSTRUCTION
SPANISH FORK, UTAH

Information Source:
Soil Survey of Fairview-Nephi Area, Utah, USDA, National Resources Conservation Service.

Drawn By:
Tony Christofferson
Cheched By:
P. D. Collins, Ph.D
Date:
4/14/03

DRG. #
III C-1

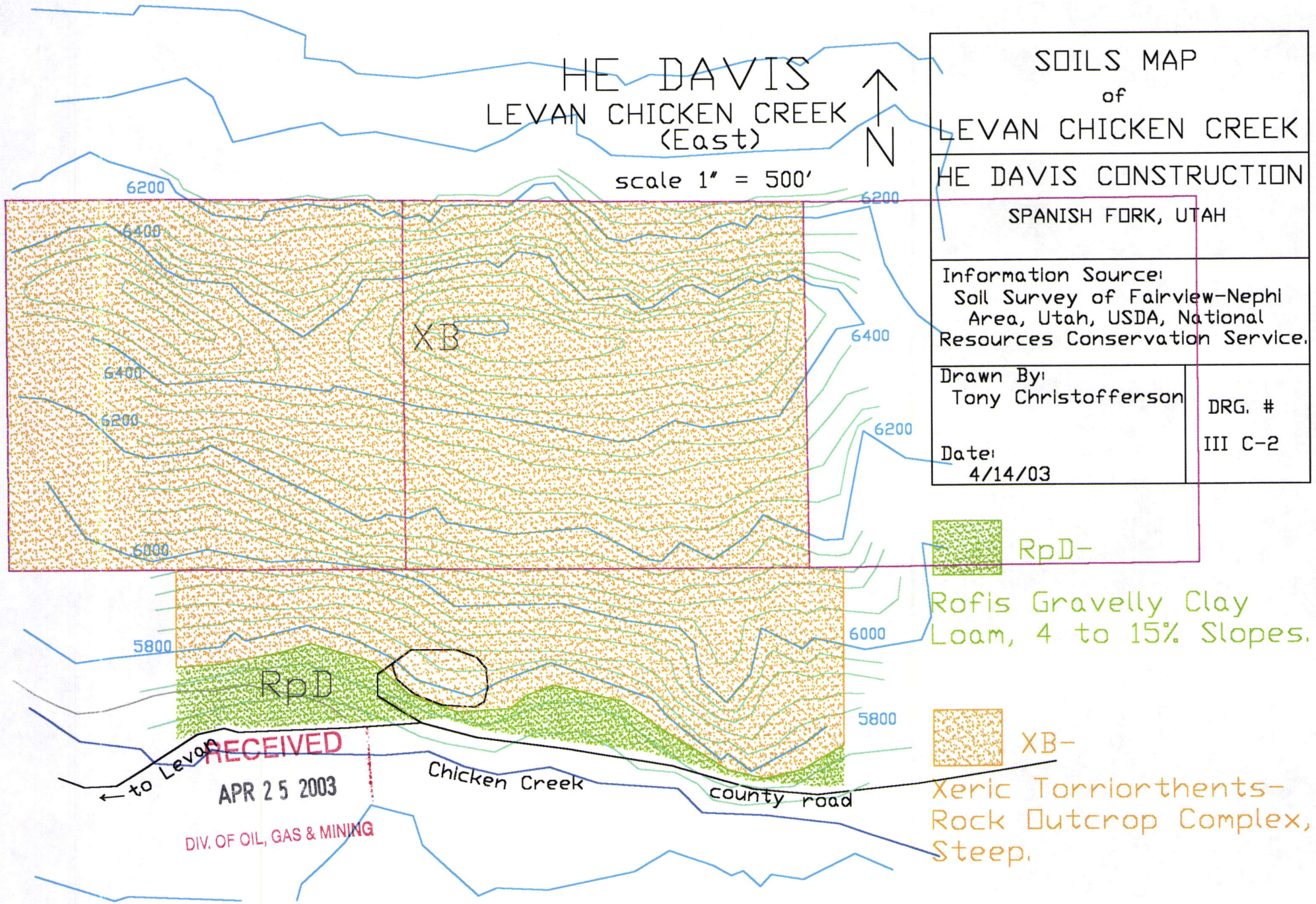
LEGEND

C1 Soil Sample Locations

RpD-
Rofis Gravelly Clay Loam, 4 to 15% Slopes.

XB-
Xeric Torriorthents-Rock Outcrop Complex, Steep.

LeF-
Lundy-Rock Outcrop Complex, 30 to 70% Slopes.



SOILS MAP
of
LEVAN CHICKEN CREEK

HE DAVIS CONSTRUCTION
SPANISH FORK, UTAH

Information Source:
Soil Survey of Fairview-Nephi Area, Utah, USDA, National Resources Conservation Service.

Drawn By:
Tony Christofferson

Date:
4/14/03

DRG. #
III C-2

RpD- Rofis Gravelly Clay Loam, 4 to 15% Slopes.

XB- Xeric Torriorthents-Rock Outcrop Complex, Steep.

106.6 Plan for protecting and re-depositing existing soil

Any soil removal will be done with a trackhoe. All the soil and any plant matter will be stockpiled together in an area that will be undisturbed by mining activities. The location of this stockpile will be in an area that has already been disturbed by mining immediately below the active mine area. A berm will be built around the base of the stockpile to prevent erosion. The berm will also be situated so that storm water will not erode the pile. The Soil will be seeded at the end of each season with a quick cover of grass and legumes in order to prevent erosion. The seed mix for the quick cover vegetation will be one recommended by DOGM and will be broadcast at a rate of 6.76 PLS lbs./acre. Soil placement or re-deposition will also be accomplished with the use of a trackhoe and shall be placed at a depth of six inches. Because a trackhoe will be used to place the soil the surface will be left somewhat uneven, however, the uneven surface will be beneficial in preventing erosion. The uneven surface will also help in re-vegetation efforts by holding seeds in depressions higher on slopes and in a more uniform distribution.

Soil that has been removed from roadways and stored on the shoulders of the road will be replaced using a trackhoe. The soil will be placed to match the original slopes and grades as close as possible. This material will be tested for nutrients and if needed, a soil amendment of composted manure at the rate of 10 tons per acre will be added.

Thickness of soil material to be salvaged and stockpiled:	___0 – 40_in.
Area from which soil material can be salvaged: (show on map)	__32___acres
Volume of soil to be stockpiled:	__32,703_cy Average 1.6"
Volume of soil already stockpiled:	__21,500_cy

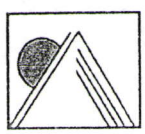
Much of the soil that will be used for reclamation of the active mining has already been removed from the mining area and stockpiled below the road that enters the active mine. When reclamation is done any extra soil will used to increase the depth of replaced soil from 5" to greater than 5".

Also show 5' inches on the reclamation treatment map.

106.5 Existing vegetation

The information for this heading is included in a report from Mt. Nebo Scientific, Inc. which comprises the following pages.

VEGETATION & WILDLIFE
OF THE
LEVAN GYPSUM MINE



Prepared by

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Patrick Collins, Ph.D.

for

GENEVA ROCK PRODUCTS
1565 West 400 North
Orem, Utah 84057

August 9, 2000

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VEGETATION & WILDLIFE
OF THE
LEVAN GYPSUM MINE

INTRODUCTION

General Site Description

Geneva Rock has an active gypsum mine in Juab County, Utah. The gypsum mine is located approximately 2 miles east of the town of Levan. This area is on the west slope of the San Pitch Mountains also known as the Gunnison Plateau. Elevation of the study site ranged from approximately 5,500 ft to nearly 7,500 ft above sea level.

Existing plant communities of the study site were comprised of mountain brush and other associated tree and shrub communities. These communities are described in greater detail in the following sections of this report. Aside from one area that has been proposed for future disturbance in about 5 years, most of the disturbance to the native plant communities have already been effected by mining activities. The intent of this report is to describe the natural, undisturbed plant communities that are similar and adjacent to those that have been impacted by mining activities. The description of these communities should drive the final revegetation plan and provide data for reasonable success standards to achieve the goals for post-mining landuse.

METHODS

Updated threatened, endangered and sensitive species lists for those species known to exist in the Uinta National Forest were provided by the USDA Forest Service. Species on these lists were evaluated when the work was done in the field and in preparation of this report.

Vegetation sampling methodologies used herein were performed in accordance with the guidelines supplied by the State of Utah, Division of Oil, Gas and Mining (DOGM). Quantitative and qualitative data were taken on the vegetation of the areas that had not been disturbed by mining activities in July and August 2000. The sample areas were adjacent to the previous disturbances, and in the same plant communities where mining has already taken place, but had not been disturbed or otherwise impacted by previous mining operations.

Transect and Quadrat Placement

Transect lines for sampling were placed in areas that appeared to be representative of the disturbance that has occurred at the site. A vegetation map of the permit area has been prepared for this report. This map also shows the locations of the sample transect lines.

Random/regular placement of sampling quadrats were designed to decrease bias, yet encompass a variety of surface areas. Once the transect lines were placed, regular points were then marked on them. From these marks, a random number dictated the direction and distance to place the

quadrats at right angles from the transect lines.

Cover, Frequency and Composition

Cover estimates were made by using ocular methods with meter square quadrats. Species composition and relative frequencies (the relative number a given species is present in a sample) were also assessed from the quadrats. Additional information recorded on the raw data sheets were: estimated precipitation, slope, exposure, grazing use, animal disturbance and other appropriate notes. Plant nomenclature followed Welsh et al. (1993).

Woody Plant Species Density

Density of woody plant species of the areas were recorded using a distance method called the point-quarter. In this method, random points were placed on the sample sites and measured into four quarters. The distances to the nearest woody plant species were then recorded in each quarter. The average point-to-individual distance was equal to the square root of the mean area per individual.

Sample Adequacy

Because each transect site was so different (thus increasing variability) and the sample data were ultimately "lumped" together to provide average values, sample adequacy formulas were not

applied to the data.

Wildlife

Information on the resident wildlife was done by accessing the State of Utah, Division of Wildlife Resource (DWR) GIS database for the study area.

Photographs

Color photographs of the sample areas were taken at the time of sampling and have been submitted with this report.

RESULTS

Vegetation

The plant communities of the Levan Gypsum Mine study site were generally comprised of mountain brush and shrubland communities. Community structure varied as a result of soil, exposure and other physiognomic features. For example, the steeper and drier sites appeared to support relatively more alder-leaf mountain mahogany *(Cercocarpus montanus)* but when the slope angle somewhat decreased, or had less exposure to the sun, soil depth appeared greater and more Gambel's oak *(Quercus gambelii)* was present. Therefore, there were areas that were dominated almost exclusively by mountain mahogany, whereas other areas were comprised mainly

of Gambel's oak [see photo "General Plant Communities (1 of 2)]. Although the trees were scattered over the entire study site, there were other areas where pinyon pine *(Pinus edulis)* and Utah Juniper *(Juniperus osterosperma)* trees became major components. Still other patches, some of which were quite substantial, of greenleaf manzanita *(Arctostaphylos patula)* were not uncommon. One area in the somewhat mid- to lower- elevations was comprised of more grass cover than all other communities observed. The dominant species here were slender wheatgrass *(Elymus trachycaulus)* and mountain mahogany.

The lowest elevations of the study site were comprised of a riparian community adjacent to Chicken Creek, and by a Big Sagebrush/Grass (*Artemisia tridentata* and *Elymus spicatus*) community at a slightly higher elevation where alluvial material had been deposited [see photo "General Plant Communities (2 of 2)]. Although not abundant, the highest elevations of the permit area supported some conifer species. A vegetation map for the entire permit area of the Levan Gypsum Mine site has been prepared and included with this report .

Much of the area affected by mining operations were those communities that fell somewhat transitional between the communities described above – or was comprised of a fair representation of both mountain mahogany and Gambel's oak with scattered pinyon pine and juniper trees. The transect lines for quantitative sampling were placed in these areas – some of them were dominated by the oakbrush whereas others were dominated by the mountain mahogany. Transect No. 1 was placed in an area that had much total living cover and was dominated by mountain mahogany (see photo "Transect No. 1"). Transect No. 2 has much less total living cover and was dominated by

Gambel's oak (see photo "Transect No. 2"). Finally, a few samples were then placed in the more grassy areas also mentioned above (See photo "Transect No. 3"). The number of samples per transect was based on the relative importance by total acreage of that particular community. In other words, the sample transects were placed in areas that seemed to represent the most common plant communities and those that were most affected by mining operations. The transect data were "lumped" together in the summaries and analyses as another measure to provide appropriate data to represent the site as a whole and to simplify the standards for final reclamation.

Quantitative sampling in three different areas suggested that the average total living understory cover was 40.40%, whereas the overstory cover was estimated to be only 1.80%. Litter, bareground and rock were estimated at 11.00%, 10.00% and 38.60%, respectively (Table 1-A). Composition by lifeform showed that the woody species represented 76.65% of the total living understory cover, whereas, grasses were 20.98% and forbs were only 2.37% (Table 1-B).

The most common plant species by cover and frequency was mountain mahogany that average 18.60% cover and was present in 60.00% of the quadrats (Table 1-C). The next most common species was Gambel's oak which comprised a total cover of 5.00% with a frequency of 20.00%. Forbs were nearly negligible in the analyses all comprising less that 1.00% total cover. In most quadrats, grasses were also uncommon, however, some of the samples were placed in an area where grasses were common. The most prevalent species in this area were slender wheatgrass.

Woody species density measurements were also taken on the undisturbed areas of the mine site.

The total number of individuals per acre was 3,203 (Table 2). The most common woody species were also mountain mahogany and Gambel's oak.

Wildlife

A site-specific search was done using the State of Utah, Division of Wildlife Resource's GIS database. The search focused on high-profile, sensitive, rare, threatened and endangered wildlife species.

Results of the search showed that there are a total of five golden eagle nests withing a one-mile radius of the project area, three of which were within 0.5 miles from the area. There was no sage grouse habitat in the area. The project area is within the range for black bear. There were no sensitive, rare, threatened or endangered invertebrate species shown to be in the area. The database showed that elk use the area for summer and winter range, but not for calving. Although deer summer range is somewhat higher and not on the project area, the site is used by them for winter range. The area, however, is probably not used by deer for their fawning activities. Finally, the Chicken Creek riparian area is used extensively by many bird species.

Threatened, Endangered & Sensitive Species

Other than the bald eagle nests described above, no federally listed threatened or endangered (or sensitive) plant or animal species were observed or are known to be present on the study site.

SUMMARY & DISCUSSION

A description of the plant communities and critical wildlife species of an area that is currently being mined for gypsum has been reported with this document. The primary purpose of the study was to provide qualitative descriptions and quantitative data for plant communities that have been impacted by the mining operations so that the information can be used to drive the final revegetation plan to present a reasonable set of success standards to achieve the goals for post-mining landuse. Additionally, the study focused on high-profile, sensitive, rare, threatened or endangered wildlife and plant species.

The limit to the extent of disturbance to the existing plant communities and wildlife habitats by current mining activities has been made for the next 5 years. Another undisturbed area planned for future mining activities has proposed (see photo "Future Mine Area"). The vegetation in this area has been mapped for the scope of this report, but prior to disturbing these areas in the future, an amendment to the mining plan will be submitted to the State of Utah, Division of Oil, Gas & Mining including quantitative data summaries that specifically address the plant communities that will be impacted.

TABLE 1: Summary of total cover, composition and cover by species of the undisturbed areas of the Levan Gypsum Mine.

A.

TOTAL COVER	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZE
Overstory	1.80	7.86	25
Understory	40.40	20.05	25
Total Living	42.20	19.95	25
Litter	11.00	9.27	25
Bareground	10.00	7.35	25
Rock	38.60	23.56	25

B.

COMPOSITION	PERCENT	STANDARD DEVIATION	SAMPLE SIZE
Shrubs	76.65	34.17	25
Forbs	2.37	5.87	25
Grasses	20.98	35.11	25

C.

COVER BY SPECIES	% MEAN COVER	STANDARD DEVIATION	SAMPLE SIZE	RELATIVE FREQUENCY
Trees & Shrubs (overstory)				
Juniperus osteosperma	0.20	0.98	25	4.00
Quercus gambelii	1.60	7.84	25	4.00
Trees & Shrubs (understory)				
Cercocarpus montanus	18.60	21.33	25	60.00
Chrysothamnus depressus	1.20	4.07	25	12.00
Juniperus osteosperma	0.60	2.94	25	4.00
Leptodactylon pungens	3.40	5.04	25	36.00
Mahonia repens	1.52	3.01	25	24.00
Pachystima myrsinites	1.40	3.01	25	20.00
Peraphyllum ramosissimum	1.40	6.86	25	4.00
Quercus gambelii	5.00	13.64	25	20.00
Forbs				
Cryptantha sp.	0.32	1.12	25	8.00
Machaeranthera canescens	0.28	1.04	25	8.00
Stellaria jamesiana	0.08	0.39	25	4.00
Wyethia amplexicaulis	0.20	0.98	25	4.00
Grasses				
Stipa hymenoides	1.80	7.05	25	8.00
Elymus trachycaulus	4.60	9.76	25	20.00

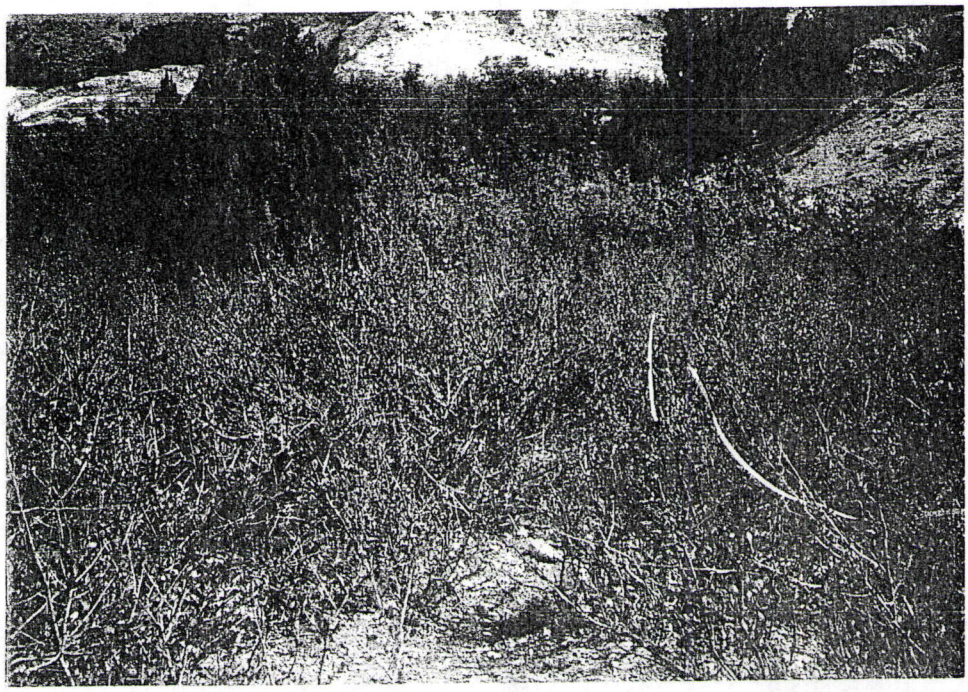
TABLE 2: Summary for woody species density of the undisturbed areas of the Levan Gypsum Mine.

A.

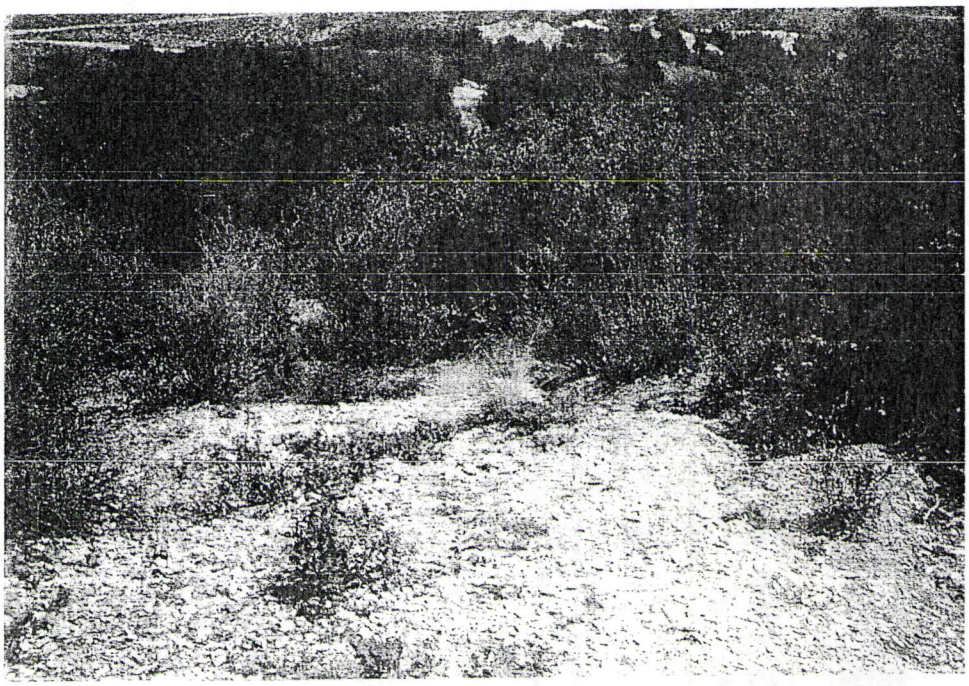
WOODY SPECIES DENSITY	NUMBER/ACRE
Artemisia tridentata	32.03
Cercocarpus montanus	1889.95
Chrysothamnus depressus	160.17
Gutierrezia sarothrae	32.03
Juniperus osteosperma	32.03
Mahonia repens	320.33
Pachystima myrsinites	96.10
Peraphyllum ramosissimum	64.07
Pinus edulis	32.03
Quercus gambelii	544.56
TOTAL	3203.31

General Plant Communities (1 of 2)

General Plant Communities (2 of 2)



Transect No. 1



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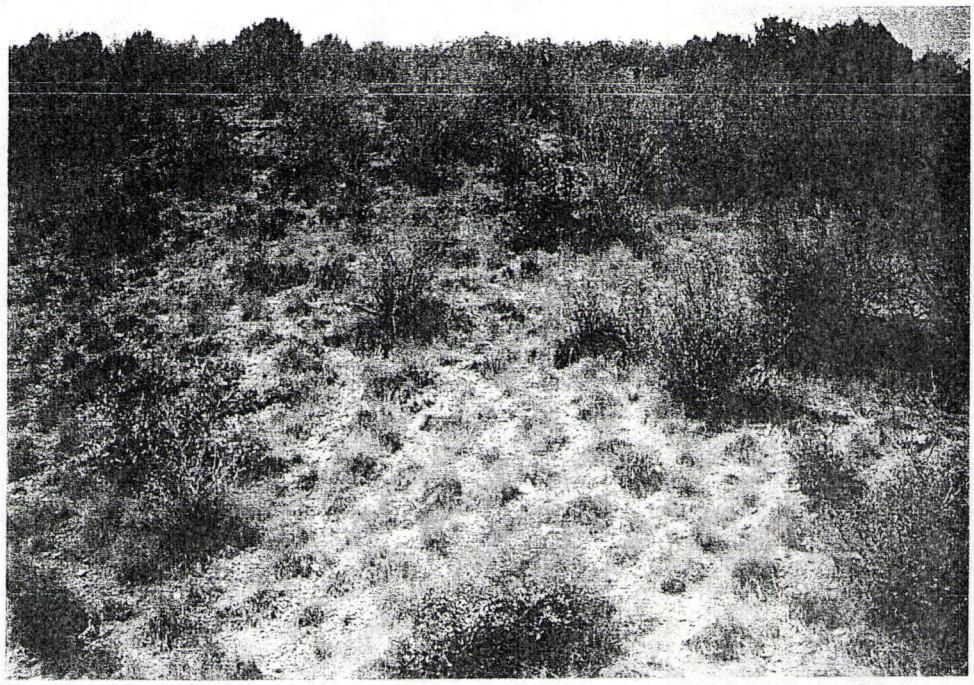

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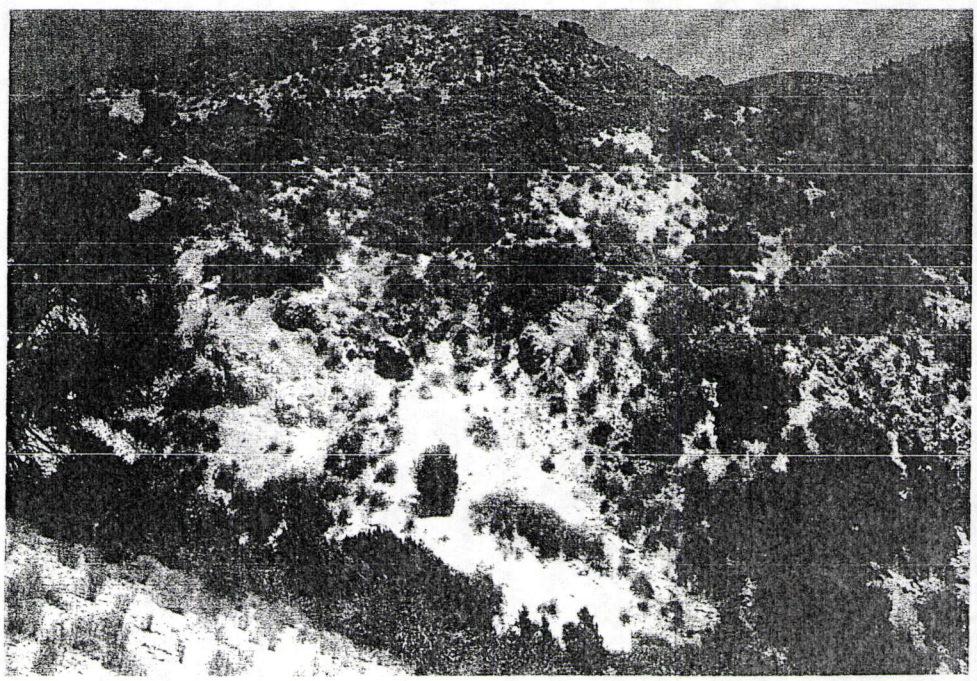
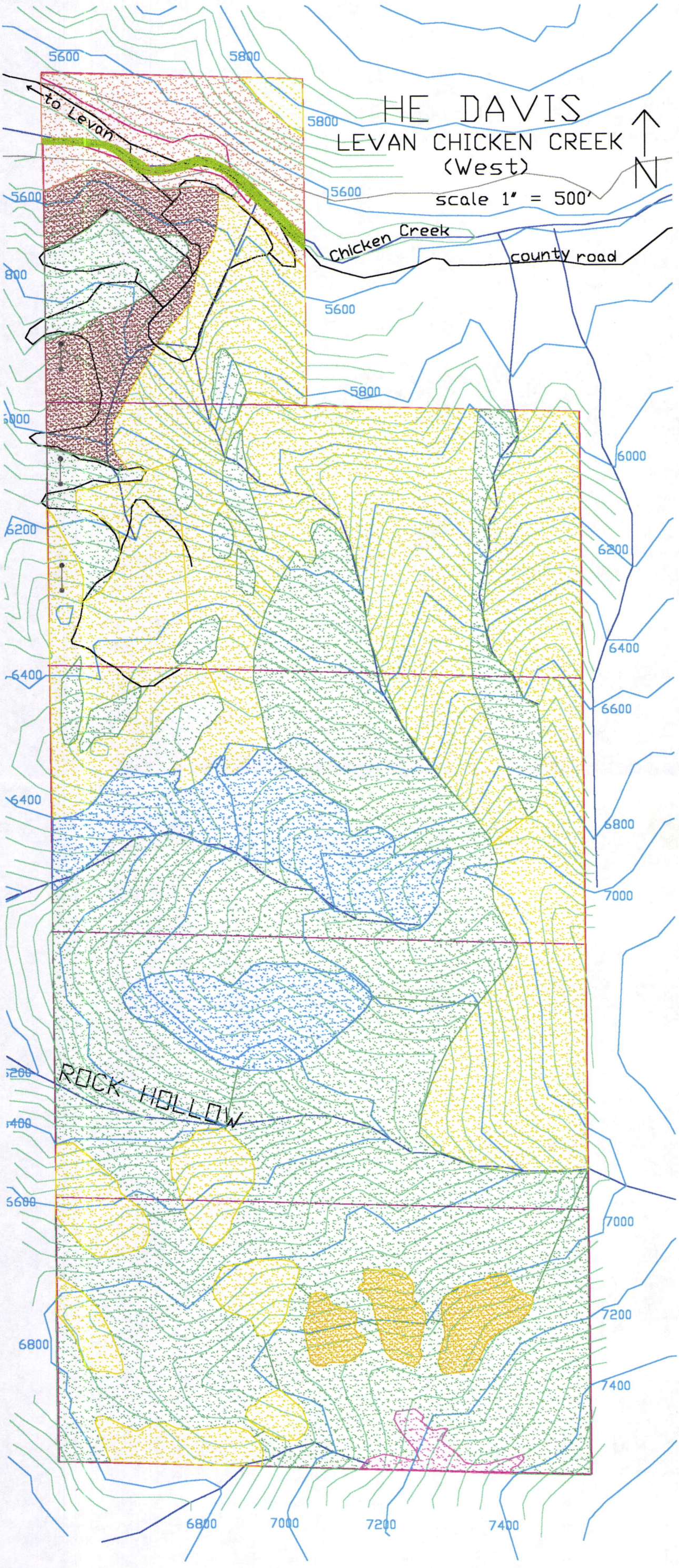


Future Mine Area



VEGETATION MAP
of
LEVAN CHICKEN CREEK

HE DAVIS CONSTRUCTION

SPANISH FORK, UTAH

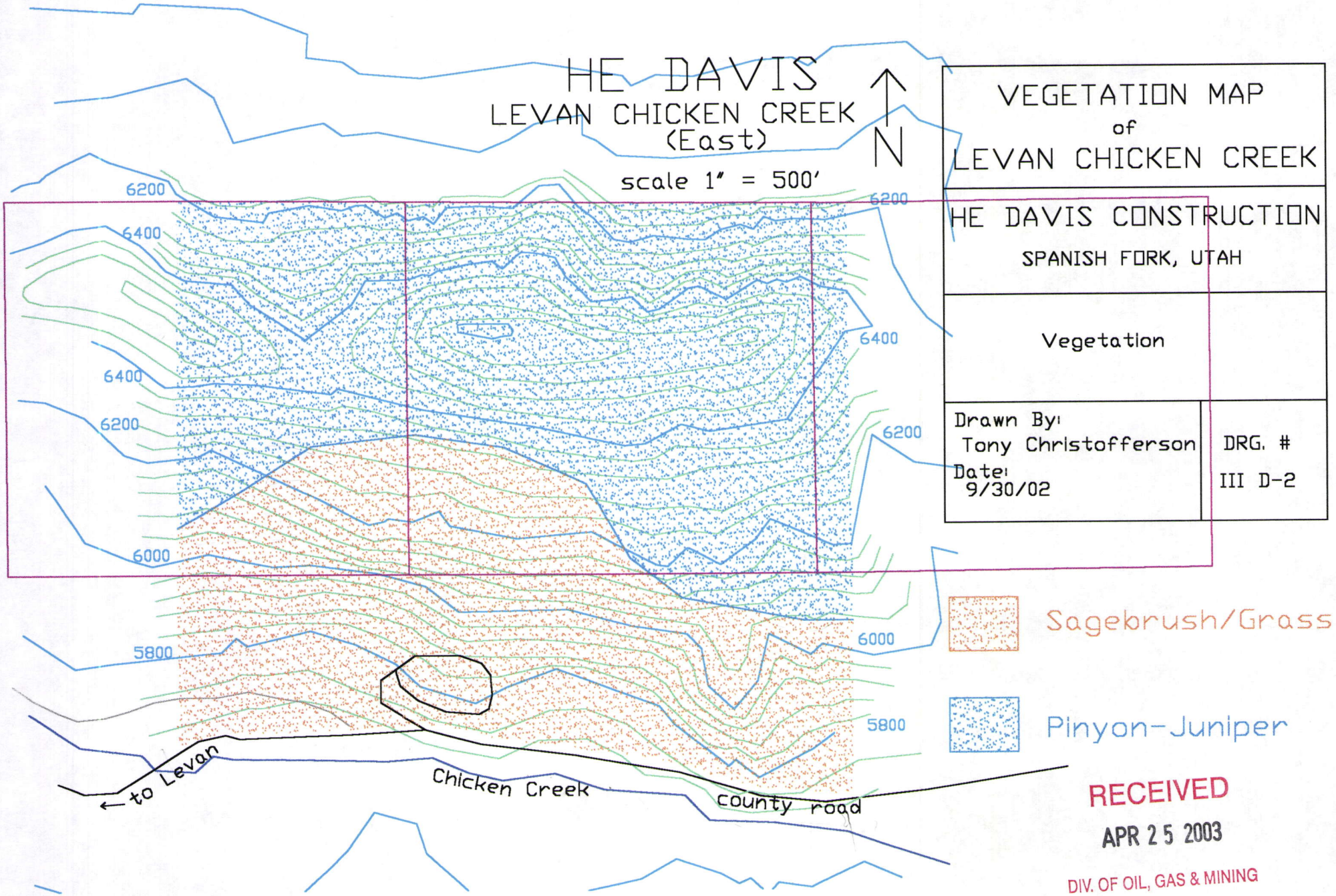
Vegetation

Drawn By: Tony Christofferson Date: 4/14/03	DRG. # III D-1

LEGEND

- Transect Line
- Riparian
- Sagebrush/Grass
- Slender Wheatgrass /Mountain Mahogany
- Pinyon-Juniper
- Mountain Mahogany
- Manzanita
- Gambels' Oak
- Conifer

RECEIVED
APR 25 2003
DIV. OF OIL, GAS & MINING



106.8 Depth to groundwater, overburden material & geologic setting.

Ground water

The depth of the ground water has not been determined through any monitoring or well sampling. The mine sites are located in bedrock outcroppings and as such no ground water will be encountered. There are no springs, ponds or permanent streams in the immediate area of the mine sites. There are however a few springs in the bottom of the canyon that supply water to the town of Levan. These springs are next to the stream that runs at the bottom of the canyon.

See following page.

Geology

The area consists of Arapien Shale with gypsum deposits. "The Arapien Shale is a sequence of red to gray shale, siltstone, fine-grained sandstone, salt, limestone and gypsum-bearing strata, the total thickness aggregating several thousand feet. The Arapien Shale forms the foothills along the southern and southwestern base of Mount Nebo and extends southward to Chicken Creek and beyond on the western side of the Gunnison Plateau.

Arapien Shale is highly contorted by both folding and faulting. Repetition, omission, and thickening and thinning of beds are common. A true thickness probably cannot be determined because of its complicated structure. Johnson (1959) measured a gypsum bed 80 feet thick on Mining Ridge, whereas in the gypsum quarry at the mouth of Salt Creek the gypsum strata measures 250 to 300 feet thick. Discontinuous outcrops and variable thickness of the gypsum along the western front of the Gunnison Plateau is due primarily to folding and faulting.

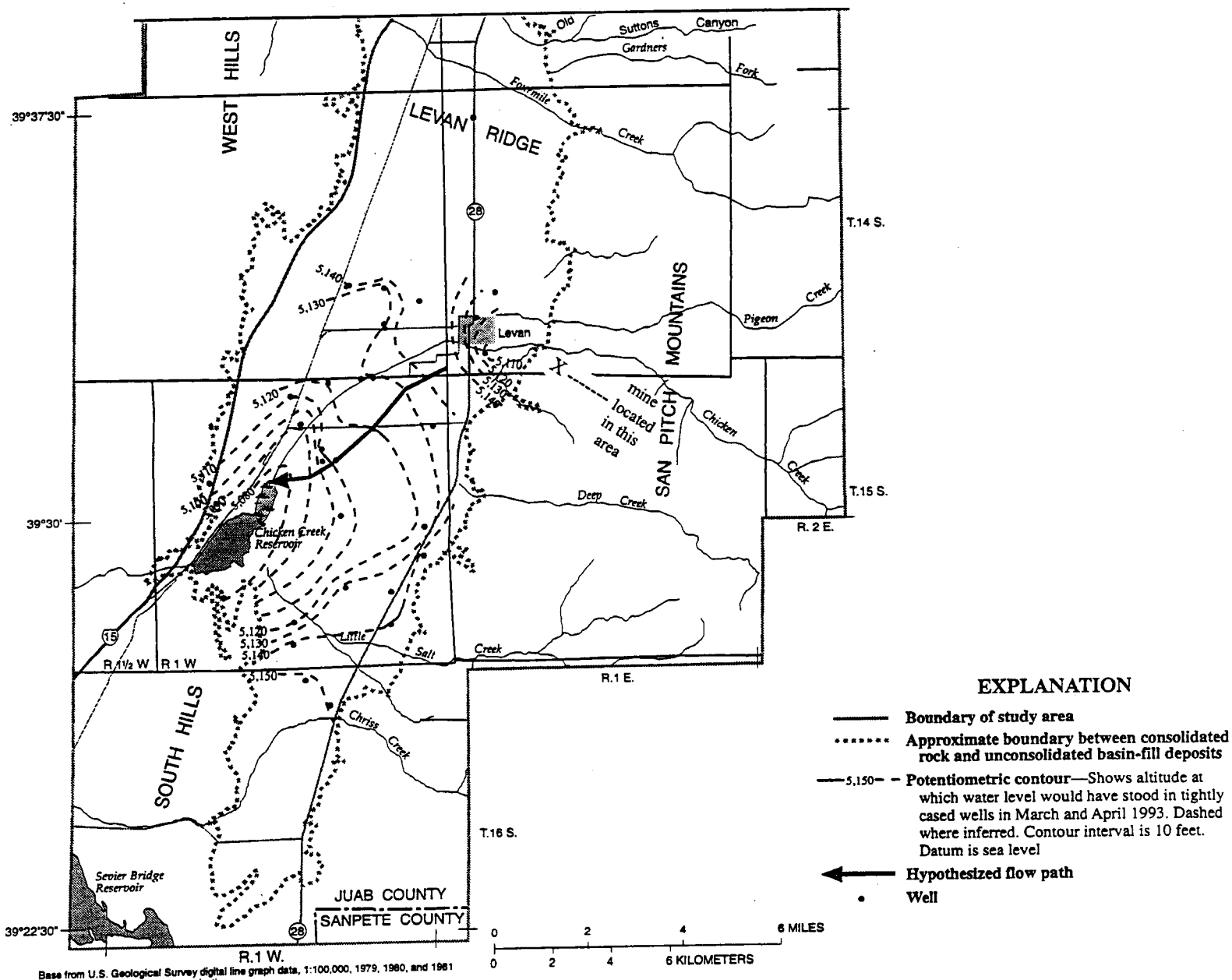
The Salt Creek and Chicken Creek gypsum occurrences form the main deposits in north central Utah."

"The Chicken Creek gypsum deposits occur 1 ½ miles east of Levan." "Gypsum is exposed in an outcrop about 200 feet high and 250 feet thick, and has been strip-mined. This deposit is similar in geologic occurrence and physical properties to the Salt Creek deposits. Gypsum strata cannot be traced continuously over the eleven miles between the mines, although it does crop out a number of places in between."

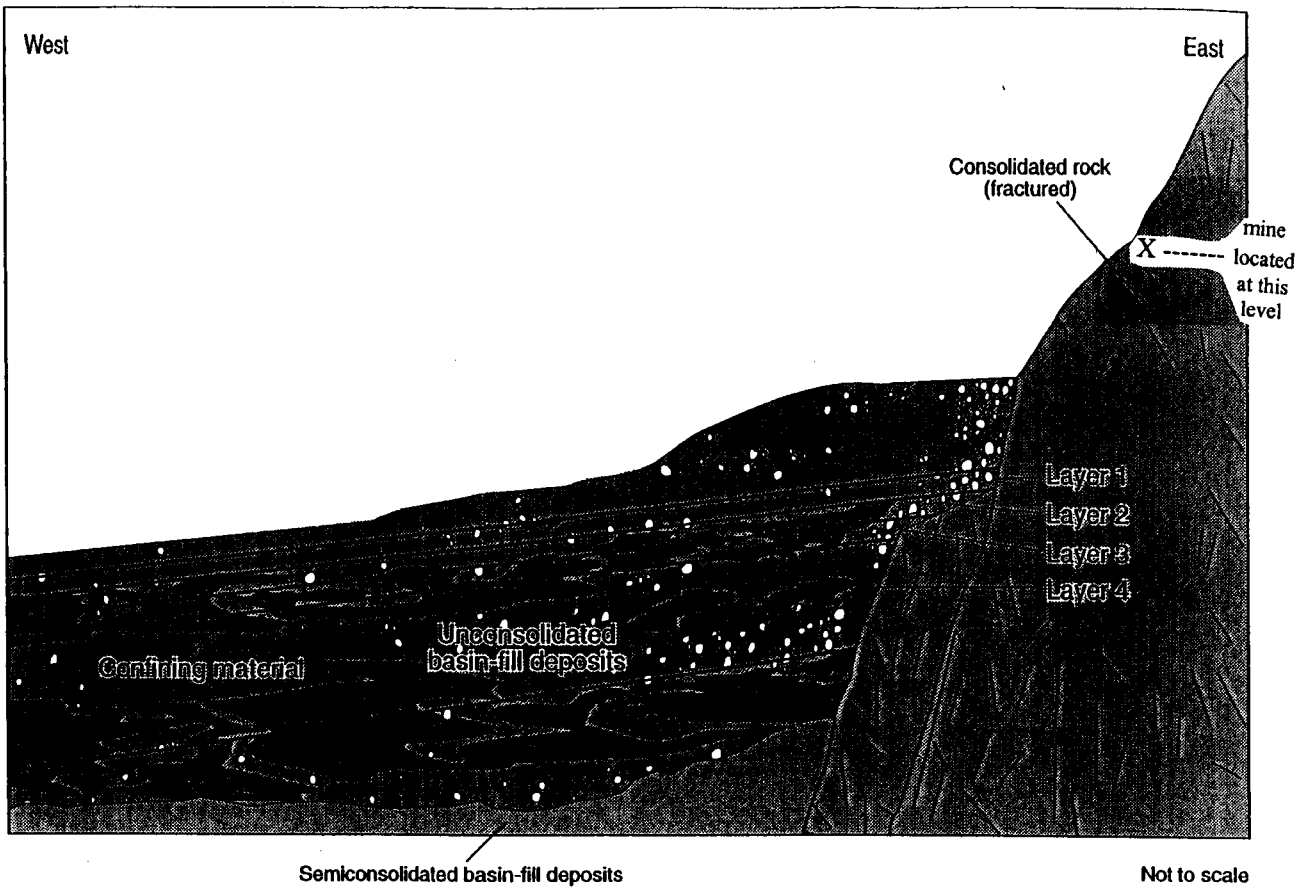
(Bullock, Kenneth C., Economic Geology of North Central Utah, **Geology Studies** BYU, Volume 9, Part 1, May, 1962.)

"Gypsum deposits in the Arapien Shale – lenses and beds of pale gray to white massive gypsum. Predominantly rock gypsum, but selenite and satin spare occur."

(Utah Geological Survey Map 135, Plate 2, Provisional Geologic Map of the Levan Quadrangle.)



Approximate potentiometric surface in unconsolidated basin-fill deposits in Juab Valley, Utah, March and April 1993.



Typical Cross-Section of the Juab Valley

106.9 Location and size of ore, waste, etc.

Ore - All ore mined from the site will be processed and stockpiled on the county road level. Any material on top of the gypsum deposit is assumed to be topsoil and will therefore be collected and saved. The gypsum deposit is massive and considered to be "pure". Because of the characteristics of the deposit all materials mined will be consumed and no tailings will be generated. The gypsum will not be treated for the purposes of processing. The ore may be sprayed with water as a dust suppressant, however, any discharge from water sprayed onto the material or from rain water would not be considered hazardous.

Overburden - Overburden will be removed with a trackhoe. This material will include soil and fines, vegetation, and small rock debris. All of which will be stored together in a stockpile in an area that will be undisturbed by mining activities and will later be used as "topsoil". A berm will be built around the base of the stockpile to prevent erosion. The berm will also be situated so that storm water will not erode the pile. The overburden is thin enough that all that is collected will be used to reclaim the areas that will be exposed as well as those areas that were already exposed at the time H.E. Davis Construction took over the mine.

Soil removed from roadways will be stored on the shoulder of the road. This will be done to control erosion and act as a safety barrier for vehicles.

All the stockpiled soil, including the soil in berms, will be seeded so that a protective covering of vegetation will grow. The vegetation will help prevent erosion as well as add organic matter to the material, which will promote future growth when the material is used for reclamation.

Tailings – No waste in the form of tailings or reject material is expected.

Dumps and ponds – Two small sediment ponds will be constructed on the lower level of the West site. The purpose of the ponds is to settle out the suspended load of any storm water that comes from the mine site. The East side will be dished at the bottom of the mine to catch any storm water.

Effluent discharge point – None constructed or used.

Minimizing Hazards

Shafts and tunnels – none on site.

Disposal of trash - A small 20' X 20' "boneyard" will be kept on site during the life of the operation. The "boneyard" will be kept near the crusher. All trash will be hauled off site and disposed of properly. No trash or equipment parts, etc. will be buried. A "port-a-potty" will also be used and maintained for all employees.

Capping holes - any exploratory holes that have been drilled will be consumed by the extraction of the gypsum. Drill holes made for blasting purposes will be consumed in the blasting process.

Posting signs - The following signs will be posted in appropriate places:

Danger High Bank

Hard Hat Area

Danger Flammable Liquid

No Trespassing

Berms and fences – 18" Berms will be used to divert storm water away from disturbed areas to help prevent erosion. A berm will be placed above highwall areas to prevent access. Entrance to the site will be controlled by gates along with the natural vegetation and steepness of the site.

Minimizing Damage to Drainage

Care will be taken to avoid disrupting the natural drainage whenever possible. Any drainage that is impacted will be restored as close to original condition and shape as possible. Wherever drainage is disturbed the new channel will be lined with a good gradation of angular, hard, 6"-24" Rip-Rap installed to engineering guidelines to help prevent erosion. Berms will be used to keep runoff from disturbed areas from flowing directly into the drainage system, thus helping to avoid silting.

Minimizing Sediment and Erosion

Berms will be constructed at the edges of the disturbed areas to control any runoff water. The berms will prevent runoff from the disturbed areas from flowing into the drainage system, thus helping to avoid silting. These berms are intended to contain any and all stormwater that falls onto the disturbed area to within the boundary of the disturbance. The berms will also prevent run-on. The lower pad may have some runoff so a small sediment basin will be constructed. The basin will contain 135% of a ten year storm event. Stormwater should not leave the site.

Two ponds shown on map

Deleterious Material Storage and Handling

Two diesel tanks will be kept on site. The maximum size of each tank will be 12,000 gallons but this may vary from season to season (sometimes being smaller). The average daily inventory will likely be about 10,000 gallons of fuel. The tanks will be kept in a bermed area that is lined with plastic. The tanks will be placed in an area that should the berm be breached any spilled fuel will not enter stream or drainage channels. A SPCC plan will be developed for this site.

There will also be lube oil stored in 55 gallon drums. The drums will be placed over drip pans when in use. When the drums are empty they will be hauled off site and disposed of properly.

Any small spills of fuel or lube oils will be collected and haul to the Geneva Rock Point of the Mountain facility where the contaminated soil will be burned in the asphalt hot plant. Any large spills will be reported to the Division of Environmental Response and Remediation (DERR) and clean–up efforts will follow their guidelines.

Phone # for DERR 801-536-4100
Emergencies 801-536-4123

Soil Salvage

Any topsoil removal will be done with a trackhoe. All the soil and any plant matter will be stockpiled together in an area that will be undisturbed by mining activities. A berm will be built around the base of the stockpile to prevent erosion. The berm will also be situated so that storm water will not erode the pile.

Soil removed from roadways will be stored on the shoulder of the road. This will be done to control erosion and act as a safety barrier for vehicles.

Stockpiled Topsoil Protection

A berm will be built around the base of the stockpile to prevent erosion. The stockpile will also be situated so that storm water will not erode the pile.

Ongoing Reclamation

Some reclamation will happen concurrently with mining operations including final grading as mining proceeds. Topsoil placement will also take place in certain areas as the mining proceeds because some areas will become inaccessible to large equipment.

Hole Plugging

All holes drilled on this site will eventually be consumed by the mining operation.

109.1 Surface and groundwater.

Surface water should not be highly impacted by mining activities at this location. Toxins and heavy metals are absent from this type of mining operation and the processing of gypsum. Storm water may pick up some sediment load as it crosses disturbed areas of the site but this will be controlled through the use of berms and sediment basins. These structures will allow the water to drop its load as it evaporates, soaks into the ground or at one point it settles in a sediment basin before it enters the stream drainage at the bottom of the canyon.

All deleterious material will have secondary containment in the form of plastic lined berms or drip pans. This will help prevent potential contaminants from getting onto the ground in the first place. If the ground is contaminated with a deleterious material the contaminated ground will be removed and transported off-site where it will be disposed of legally and properly.

The mine is located on bedrock therefore groundwater would not be effected by activities at this mine site.

GENEVA ROCK

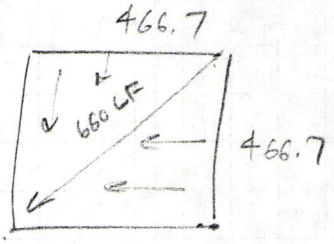
Customer _____

Project _____

Date _____

Levan Pit.

5 Acre square
collect water at one corner.



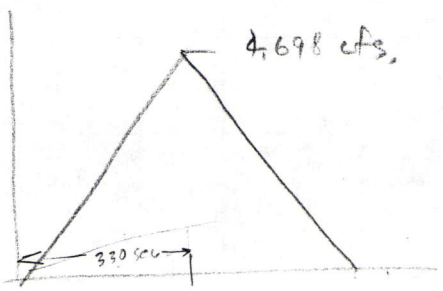
Distance For T_c = 660 ft.
Average Velocity of overland flow on bare ground & 5% slope
= 2 ft/sec (SCS Graph)

$$T_c = 660\ ft \left(\frac{1\ sec}{2\ ft}\right) = 330\ sec = 5.5\ min.$$

Calculate Runoff.
Rational Formula
$Q = CiA$ Use $C = 0.30$
$A = 5$ Acres
$i = 3.132$ in/hr

$$Q = 0.30\ (3.132\ in/hr)(5\ Acres)$$
$$= 4.698\ cfs$$

Total Runoff



$$V = 4.698 \frac{ft^3}{sec} (330\ sec) = 1,550.34\ ft^3 = 57\ cy.$$

109.2 Wildlife habitat and endangered species.

"Wildlife

A site-specific search was done using the State of Utah, Division of Wildlife Resource's GIS database. The search focused on high-profile, sensitive, rare, threatened and endangered wildlife species.

Results of the search showed that there are a total of six golden eagle nests within a one-mile radius of the project area, four of which were within 0.5 miles from the area. There was no sage grouse habitat in the area. The project area is within the range for black bear. There were no sensitive, rare, threatened and endangered invertebrate species shown to be in the area. The database showed that elk use the area for summer and winter range, but not for calving. Although deer summer range is somewhat higher and not on the project area, the site is used by them for winter range. The area, however, is probably not used by deer for their fawning activities. Finally, the Chicken Creek riparian area is used extensively by many bird species.

Threatened, Endangered & Sensitive Species

Other than the bald eagle nests described above, no federally listed threatened or endangered (or sensitive) plant or animal species were observed or are known to be present on this study site."

Patrick Collins, PhD., Mt. Nebo Scientific, Inc.,Vegetation & Wildlife of the Levan Gypsum Mine, Page 7.

Mining will affect some of the range for larger species and will diminish the food supply somewhat. The mining activity will however, open pathways which will allow access to the more remote areas of the hillside. The loss of range will be restored when reclamation takes place.

The potential impacts on bald eagles would be the loss of some habitat for prey species. The loss of this habitat will be restored and may even be enhanced when reclamation takes place. Noise and dust from the operations could also have some impact although the extent is not known. The plant will be operated in such a manner as to minimize dust through the use of water sprays at the crushing equipment and magnesium chloride on the roads. The plant will also be operated only during daytime hours. A yearly review of the Eagles' nests will be conducted in accordance with the recommendations of the study. The inspection of nests will expand to include the nest mentioned near the upper mining area when activities proceed to that point.

The riparian habitat that is found in this area will not be disturbed. There should be not effect on water foul.

109.3 Existing soil and plant resources.

"No federally listed threatened or endangered (or sensitive) plant or animal species were observed or are known to be present on this study site."

Patrick Collins, PhD., Mt. Nebo Scientific, Inc., Vegetation & Wildlife of the Levan Gypsum Mine, Page 7.

The area in which the mine is located has steep slopes with relatively thin layers of soil. All the soil that is disturbed will be saved for reclamation purposes. The same soil type exists over the entire mine site so mixing of two different types of soil for reclamation will not be a factor.

The riparian habitat that is found in this area will not be disturbed.

Other plant species that will be affected are parts of larger tracts that will regenerate over time. Mining will affect less than 5% of any contiguous community.

109.4 Slope stability, erosion, air, public health and safety.

Slope Stability and Erosion

Slope stability will not be a major factor at this site because the soils are only 0" to 3 feet in depth. The bedrock is close to the surface and is in fact exposed in many locations. The bedrock is massive and is not highly fractured therefore relatively little mass movement will occur.

Erosion will be controlled through the use of berms. The berms will be used to keep storm water from running off directly into the drainage system and to keep storm water from running on to soil storage areas. Because the mine is located primarily on bedrock there will be relatively small amounts of material from disturbed areas that would be eroded.

Air Quality

Because of the nature of the material that is being mined, some dust will be created in excavation, transportation and processing the gypsum. During excavation care will be taken to reduce the amount of dust generated by using good methods of loading and by reducing the amount the material is handled before loading. The dust generated during transportation can be reduced by the use of magnesium chloride sprayed directly onto the road surface. A water tank will be maintained at the crusher so that spray bars can be used to suppress dust while material is being processed. H.E. Davis Construction will maintain current air quality permits from the Division of Air Quality (DAQ).

Public Health and Safety

The mine is registered with the Mining Safety and Health Administration (MSHA) and all rules and regulations will be observed. Workers at the mine are expected to abide MSHA rules as well as company policies regarding safety for their own safety as well as that of the public. Other safety measures will include limiting access to the site with gates. Signs will be posted and a a berm will be placed above high bank areas to warn and protect hikers and hunters. Other signs will be installed throughout the site in appropriate locations including " Hard Hat Area", "No Trespassing" and "Danger Flammable Liquid".

110.1 Current land use and post-mining land use.

Current or pre-mining land use(s) [other than mining]: _Wildlife Habitat_

List future post-mining land use(s) proposed: _ Wildlife Habitat _

The US forest service property will revert back to wildlife habitat.

The private property will also revert back to wildlife habitat.

110.2 Reclamation of roads, highwalls, slopes, etc.

Reclamation of roads

Soil that has been removed from roadways and stored on the shoulders of the road will be replaced using a trackhoe. The soil will be placed to match the original slopes and grades as close as possible. The soil will be tested for nutrients and a soil amendment of composted manure will be added if necessary. Roadway areas will then be seeded with a DOGM approved seed mix

Reclamation of highwalls

A variance will be requested so that highwalls may be left as the final grade for parts of this mine. A report from AGEC will be included with this NOI that details the stability of the slopes that are proposed for this mine. The recommendations listed in that report will be followed including setbacks of the slope face and processes used to mine the material. The benches of the highwalls will be covered with 5" of soil and then hand broadcast seeded. The area will be raked to help cover the seeds.

Reclamation of slopes

Slopes will be graded in such a way as to tie mined areas back into existing slopes. Roadways will also be graded to match the pre-mining slopes from which they were cut. All slopes will be covered with at least 5" of soil and then seeded.

Impoundments, pits and ponds to be left

None will be left.

Reclamation of impoundments, pits and ponds

There will be a two small detention basins built to collect runoff from the stockpile and processing site of the west site. The basins will be used to hold runoff water and to act as a sediment trap. The basins have been designed to hold 135 % of a 10-year storm event. The East basin will be about 525 square feet, 4 feet deep and will have a capacity of about 77 cy. The West basin will be just large enough to handle runoff from the West entrance road and from the county road in this area. The basins will be reclaimed at the end of operations.

Note : see copy of engineering calculations.

Reclamation of drainage

Minimal damage will be done to any drainage system. The most impact will be on the lower level, of the West site, where a pad has been constructed for the processing and storage of material. The drainage area for spring runoff and storm events has been shifted to the east but the grade has been relatively unchanged. This drainage will be reclaimed at the end of operations. The drainage channel will be lined with a good gradation of angular, hard, 6"-24" Rip-Rap installed to engineering guidelines to prevent erosion.

Reclamation of Waste Dumps

No waste material will be generated therefore no reclamation of dumps will need to be completed.

Reclamation of shafts and adits

There are no shafts or adits on the property currently and none will be constructed therefore none will remain when mining is complete.

Reclamation of drill holes

All drill holes will be consumed in the mining process and none will remain when mining is complete.

Reclamation of tailings

No tailings will be generated therefore none will remain when mining is complete.

Reclamation of leak pads

No leak pads will be constructed therefore none will remain when mining is complete.

Describe the disposition of any stockpiles remaining

No stockpiles will remain when mining is complete.

Reclamation of benches and quarry floors

Topsoil will be placed on the benches using a trackhoe and seeding will take place as mining proceeds. The quarry floors will be sloped, covered with topsoil and seeded at the conclusion of operations.

110.3 Surface facilities to be left.

There will be no surface facilities left on forest service property. All areas will be reclaimed to the standards set forth by the US Forest Service and the Division of Oil, Gas, and Mining.

The access roads to the mine that are on private property will be removed from service and reclaimed. All machinery and support equipment will be removed from the site. The pad that is used for material processing and storage will be re-graded and will then also be reclaimed.

The haul road that will be used for the East site will not be reclaimed. The road is an existing access road that the cattlemen will use for access to their property.

110.4 Treatment of deleterious material.

All diesel fuel tanks and drums containing lubricant will be removed from the site. Any small spills of fuel or lube oils will be collected and haul to the Geneva Rock Point of the Mountain facility where the contaminated soil will be burned in the asphalt hot plant. Any large spills will be reported to the Division of Environmental Response and Remediation (DERR) and clean–up efforts will follow their guidelines.

Phone # for DERR	801-536-4100
Emergencies	801-536-4123

110.5 Re-vegetation, topsoil and planting.

a) Soil Material Replacement

Soil placement or re-deposition will be accomplished with the use of a trackhoe and shall be placed at a depth of five inches. Because a trackhoe will be used to place the soil the surface will be left somewhat uneven, however, the uneven surface will be beneficial in preventing erosion. The uneven surface will also help in re-vegetation efforts by holding seeds in depressions higher on slopes and in a more uniform distribution.

b) Seed Bed Preparation

Seedbed preparation will be accomplished as soil is replaced over the mined areas and as roads are closed. Soil placement or re-deposition will be accomplished with the use of a trackhoe and shall be placed at a depth of five inches. The ground will not be scarified because the working surfaces are almost entirely comprised of bedrock. The soil that is replaced will be placed in a manner that will not compact the material and will leave the surface uneven.

To increase the % OM in the soils an application of 10 ton/acre of composted manure will be placed on top of the soil. The manure will be incorporated into the soil either by manual or mechanical means. Care will be given to not compact the soil prior to seeding.

c) Seed Mixture

Revegetation Seed Mixture
For the Levan Gypsum Mine

Plant Type Scientific Name	Rate PLS* Pounds per Acre	No. of Seeds Per square ft.
Amalanchier utahensis	2.00	1.18
Artenmisia Tridentata wyo.	0.10	5.91
Cercocarpus Montanus	5.00	6.77
Chrysothamnus nauseosus	0.30	2.75
Achillea millefolium	0.10	6.36
Linum lewisii	1.00	6.38
Hedysarum Boreale	3.00	2.31
Penstemon eatonii	0.50	6.89
Penstemon palmeri	0.50	7.00
Elymus lanceolatus	2.00	7.07
Elymus trachycaulus	3.00	11.02
Elymus smithii	2.00	5.79
Elymus spicatus	3.00	9.64
Stipa hymenoides	2.00	8.63
TOTALS	24.50	87.72
* Pure Live Seed		

Could reduce by about 1/3

d) Seeding Method

Seeding will be done using a couple of methods. The majority of the seeding will be done with hydroseeding technology. The seeds will be placed in a tank that contains water and small amount of fibermulch (as a tracer). This mixture will be sprayed out over the soil surface either through a truck mounted sprayer or through the use of hoses. The mixture will be spread evenly and in a density consistent with the requirements of the seed mixture specifications found under the heading "Seed Mixture".

Some seeding may have to be accomplished by hand broadcasting due to the remoteness or inaccessibility of certain areas or to treat small areas that have been disturbed subsequent to hydroseeding. After the seed is broadcast the area will be raked to cover the seed

All seeding will be done in the fall of the year when the potential for germination has passed for the season. This will allow the seeds to geminate in the spring where spring precipitation and soil moisture will sustain plants long enough for establishment.

e) Fertilization

To increase the % OM in the soils an application of 10 ton/acre of composted manure will be placed on top of the soil. The manure will be incorporated into the soil either by manual or mechanical means. Care will be given to not compact the soil prior to seeding.

f) Other Revegetation Procedures

The majority of the seeding will be done with hydroseeding technology. The seeds will be placed in a tank that contains water and a small amount of fibermulch as a marker. This mixture will be sprayed out over the soil surface either through a truck mounted sprayer or through the use of hoses. The mixture will be spread evenly and in a density consistent with the requirements of the seed mixture specifications found under the heading "Seed Mixture".

High Wall

H.E. Davis Construction would propose to have high walls as part of the final grading plan because of the steep terrain in which the deposits are found. In order to remove the material a high wall will need to be left. The high walls will be 40' with shelves of 20' or (30' with a 15' shelf). Each shelf will be covered with soil to a depth of five inches and then seeded.

Applied Geotechnical Engineering Consultants, Inc.

August 15, 2001

Geneva Rock Products
1565 West 400 North
Orem, UT 84057

Attention: Tony Christofferson
Fax 765-7830

Subject: Slope Stability Evaluation
Geneva Rock Gypsum Mine
Levan, Utah
AGEC Project No. 1010466

Gentlemen:

Applied Geotechnical Engineering Consultants, Inc. was requested to evaluate the stability of proposed rock excavations for the gypsum mine located approximately 1 ½ miles southeast of Levan, Utah. The study includes a site reconnaissance, measurements in the field of rock discontinuities, laboratory testing and engineering analysis.

PROPOSED CONSTRUCTION

Gypsum is being mined from the hillside southeast of Levan, Utah by means of an open excavation. The final excavation for the open-pit mined area will consist of a benched excavation slope with 40 foot high, near vertical walls and 20 foot wide benches. The total planned height of the excavation could be up to approximately 160 feet. The high wall portion of the excavation will have a trend of North 43 degrees East and North 28 degrees East. We anticipate that there may be an excavation slope approximately perpendicular to the high-wall with an orientation of North 46 degrees West.

SITE CONDITIONS

The site is presently being mined for gypsum. The existing excavations consist of an approximately 80 foot cut with 40 foot high sections and a 20 to 30 foot wide bench between. The excavation is being performed by drilling, blasting and loading material into haul trucks.

The natural ground in the area of excavation consists of a hillside with a slope on the order of between 2 and 2½ horizontal to 1 vertical. The slope of the natural ground is down toward the west and northwest.

Vegetation of the natural ground consists of grass, brush and trees. There are some bedrock outcrops in the area of undisturbed ground.

The bedrock exposed in the excavations and in outcrops in the area consists of the Jurassic-aged Arapien Shale based on mapping provided by Geneva Rock Products.

The bedrock is relatively massive with some jointing in the direction of bedding and near vertical orientations. Discontinuities were measured in the field at the area being excavated and in nearby outcrops. Measurements of the discontinuity orientations were plotted on a stereonet and the average orientation of the discontinuity determined. The following is a summary of the average orientation of the measured discontinuities.

DISCONTINUITY	STRIKE, DEGREES	DIP, DEGREES
Bedding	N 32 W	26 SW
Dominant Joint	N 17 W	79 E
Dominant Joint	N 86 E	85 N
Stepped Rock Joint	N 71 W	79 N
Fracture from Blasting	N 23 E	75 NW
Fracture from Blasting	N 53 W	80 SW

The discontinuities generally consist of irregular, relatively rough surfaces with some cementation of the discontinuities.

LABORATORY TESTING

Samples of the rock being excavated were obtained for laboratory testing. Unconfined compressive strength tests were performed on 3 samples of the rock. Unconfined compressive strengths of 2,220, 2,840 and 4,980 pounds per square inch were measured.

Blocks of the rock were placed with their joints and/or bedding planes against each other and tilted to determine the angle at which the rock slid. The average measured angles for the tests indicate that the bedding plane has a friction angle of 40 degrees and the joints have a friction angle of 42 degrees.

ENGINEERING ANALYSIS

Results of the field observations and laboratory tests were used to evalu ility of the rock excavation slopes for the 3 proposed slope orientati e average discontinuity orientations were plotted on a stereonet a ch of the interfaces between discontinuities was determined ass degrees for the bedding plane and 42 degrees for joint faces.

Only one of the highwalls is oriented like this

Safety factors were also determined for sliding along be

CONCLUSIONS AND RECOMMENDATIONS

1. Based on the conditions observed at the site, laboratory testing and engineering analysis, the two high-wall excavation slopes with orientation of North 40 degrees East and North 28 degrees East, will have a safety factor against failure of 1.7 for the proposed 40 foot high, 20 foot wide benches if the face of the 40 foot excavation is sloped back to at least 0.2 horizontal to 1 vertical and the blast produced fractures can be eliminated.. The need to slope the face of the excavation is due to a joint set which was observed to dip at approximately 0.1 horizontal to 1 vertical in the direction of the cut face. This assumes that similar conditions are encountered as the excavation is developed. This also assumes that there is no build up of water in the slope.

2. The excavation slope which would be oriented in a general perpendicular direction to the high-wall excavation with orientation of North 46 degrees West will not have a stable configuration with respect to rock discontinuities if constructed with a steep face. The excavation face should be sloped to 1.3 horizontal to 1 vertical or flatter, to provide for a safety factor against failure of at least 1.2.

3. Development of the final rock face should be performed using blasting techniques which minimize fracturing of the rock behind the slope face. Consideration may be given to using special blasting techniques such as buffer blasting, presplit blasting and smoothwall blasting. Care should be taken to not use excessively high blast energies which would result in fracturing of the rock face to remain.

LIMITATIONS

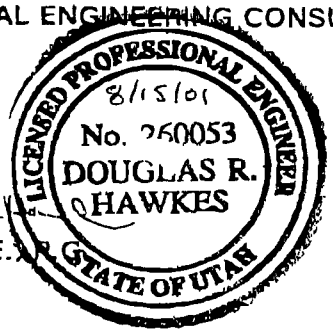
This letter has been prepared in accordance with generally accepted geotechnical engineering practices in the area for the use of the client for design purposes. The conclusions and recommendations included in the report are based on the information obtained from field measurements, laboratory testing and engineering analysis as described in the report. Variations in the subsurface conditions may not become evident until additional exploration or excavation is conducted. Rock conditions with measurements of rock discontinuities

should be performed as the excavation is developed to determine if the orientation of the discontinuities is similar to those describe above. If orientations of discontinuities or variations in the rock condition vary significantly from what are describe above, we should be notified so that we can re-evaluate the recommendations given.

If you have any questions, or if we can be of further service, please call.

Sincerely,

APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS, INC.



Douglas R. Hawkes, P.E.

Reviewed by JEN, P.E.
DRH/dc

IX – Surety

H.E. Davis Construction will provide the necessary surety bond for reclamation.

Reclamation Surety Estimate

H.E. Davis Construction, Inc.

Levan Gypsum - Steele M/023/016 - Juab County

Activity	Quantity	Units	$/Unit	$ Cost
safety gates, signs etc	6	ea	200	600
demolition of buildings/facilities	0	cf	0.24	0
debris & equipment-trucking	2	trips	50	100
debris & equipment-dump fees	20	ton	55	1,100
debris & equipment-loader	2	hours	166	332
debris & equipment-labor	4	hours	15	60
regrading facilities area	5	acre	364	1,820
regrading stockpile slopes	19,300	cy	0.36	6,948
ripping dump tops	4	acre	271	1,084
ripping stockpile & compacted	6	acre	271	1,626
ripping pit floors	45.04	acre	271	12,206
ripping pit access roads	6.24	acre	271	1,691
creating safety barriers-highwall	2,870	lf	0.12	344
ripping access roads	6.24	acre	271	1,691
regrading access roads	6.24	acre	364	2,271
sidecast material replacement	12,370	lf	1.09	13,483
surface drainage-restore	200	lf	2	400
Rip Rap Waterway	200	lf	15	3,000
retention pond	2	ea	200	400
topsoil -dozer/trackhoe	31,717	cy	0.36	11,418
topsoil -truck	17,078	cy	2.6	44,403
composted manure	58.81	acre	300	17,643
broadcast seeding	8.5	acre	170	1,445
hydroseeding	50.3	acre	800	40,240
general site cleanup	50	acre	50	2,500
equipment mobilization	4	equipment	2000	8,000
supervision	30	days	386	11,580
Sub Total				186,385
10% contingency				18,638
escalator for 5y @ 2.89%/year				29,626
Total				**234,649**